

4.9 CONSTRUCTION-RELATED IMPACTS

The purpose of this section is to discuss the short-term demolition, remediation, and construction related impacts of project implementation. This section examines possible short-term impacts with regards to hydrology and water quality, air, noise, underground utilities, aesthetics/light and glare, hazards and hazardous materials, traffic, biological resources, and cultural resources. Impacts discussed address both the co-located and stand-alone scenarios and are the same for both.

Information used in this section was obtained from the *City of Huntington Beach General Plan* (1996), *City of Huntington Beach General Plan EIR* (1995), the *City's General Plan Circulation Element Update: Traffic Study* (Austin-Foust Associates 2009); *Soil and Groundwater Hazardous Materials Investigation Report for Huntington Beach Seawater Desalination Plant* (Poseidon Resources Corporation 2007); *Frac-Out Contingency Plan for Directional Drilling of Product Water Pipeline Crossings* (2007); *Remedial Action Work Plan* (2007); *Results of the Biological Constraints Survey for the OC-44 Underground Booster Pump Station, Newport Beach, Orange County, California* (Bonterra 2009a); *Phase I Cultural Resources Assessment for the Poseidon Seawater Desalination Project, Huntington Beach, Orange County, California* (Bonterra 2009b); Results of the Biological Survey for Option 2 for the location of the OC-44 Underground Booster Pump Station Project Site, Newport Beach, Orange County, California (Dudek 2010, Appendix B to the SEIR); Results of the Biological Survey for Option 3 for the location of the OC-44 Underground Booster Pump Station Project Site, Newport Beach, Orange County, California (Dudek 2010, Appendix B to the SEIR); the *Southeast Coastal Redevelopment Plan Program Environmental Impact Report* (RBF Consulting 2002); *Seawater Desalination Project at Huntington Beach – Air Quality Analysis* (RBF Consulting 2010a, Appendix E to the SEIR); and *Seawater Desalination Project at Huntington Beach – Acoustical Analysis* (RBF Consulting 2010b, Appendix F to the SEIR).

EXISTING CONDITIONS

Existing conditions for the issues addressed in this section are generally described in the sections of Chapter 4 of this SEIR under the corresponding topical subject. The following provides more specific information relating to existing conditions that may be affected by short-term construction activities. This section also describes and provides additional detail regarding construction techniques and activities that are anticipated during construction of the desalination facility, off-site pump stations and the off-site water conveyance facilities.

PROPOSED DESALINATION FACILITY SITE

Site Character

The approximately 13-acre site is located within the City of Huntington Beach, south of Hamilton Avenue, north of Pacific Coast Highway, east of Newland Street, and west of Magnolia Street. The proposed project site is developed and consists of three fuel storage tanks formerly used in conjunction with the Huntington Beach Generating Station (HBGS). The topography of the site is relatively flat, gently sloping to the southwest, with an elevation of approximately five feet above mean sea level (msl). On-site vegetation consists mainly of non-native low-lying shrubs and bushes with areas of sparse vegetation in other areas surrounding the Fuel Oil Storage Tanks. The Natural Resources Conservation Service maps onsite soils as Tidal Flats or Bolsa soils. Site visits and historical documentation indicate that soils on the site can be characterized as fill material. The subject site contains no blue-line drainages (Glenn Lukos Associates, 2009). Areas surrounding the

onsite fuel oil storage tanks and corresponding containment berms were evaluated for the presence of wetland indicators including wetland hydrology and wetland indicator plant species by Tony Bomkamp of Glenn Lukos Associates in 2009 (refer to Appendix H, Jurisdictional Determination). The area surrounding Fuel Oil Storage Tank 1 was found to include a predominance of wetland indicator plant species at a time when the HBGS used this area to routinely pump storm water from other locations at the HBGS site during and immediately following storm events. Given that HBGS has discontinued the practice of pumping storm water into this area and that areas immediately adjacent to this area, with otherwise the same hydrological conditions, were found to support a predominance of upland plant species, under normal conditions the containment area surrounding Tank 1 is not expected to support wetland indicator plant species. With a lack of natural wetland hydrology and hydric soils, and vegetation no longer exhibiting a predominance of wetland indicator species, the Jurisdictional Determination found that there are no wetland areas within the containment area surrounding Tank 1. Areas surrounding Tanks 2 and 3 were also surveyed and found to lack hydric soils and wetland hydrology. The area surrounding Tank 2 was found to include sparse upland vegetation. The area surrounding Tank 3 includes vegetation that may or may not be considered wetland indicator species depending on the presence of other wetland indicators. The Jurisdictional Determination therefore also found that there are no wetlands within the areas surrounding Tanks 2 and 3 (Glenn Lukos Associates, 2009). For additional information regarding existing on-site features, refer to Section 4.1, Land Use/Relevant Planning, and Figure 3-2, Site Vicinity Map.

Character of Surrounding Areas

Surrounding adjacent land uses include the HBGS, an unused oil storage tank and SCE electrical switchyard, to the south, the Orange County Flood Control District (OCFCD) flood channel to the east, the City of Huntington Beach's maintenance yard and Edison Avenue to the north, and an electrical switchyard and Newland Avenue to the west. Additional surrounding land uses include Pacific Coast Highway to the south, a wetland area to the southeast, the Pacific Holdings storage tank facility and Ascon/Nesi Landfill to the east, commercial, industrial, recreational, and residential uses to the north, and undeveloped land, Huntington-By-The-Sea Mobile Home Park, and Cabrillo Mobile Home Park to the west.

Mostly owned by the Huntington Beach Wetlands Conservancy, the Huntington Beach Wetlands are situated southeast of the desalination site and occupy a 135-acre, 1.5-mile-long area along the coast, bordered by Pacific Coast Highway to the southwest, and the Talbert and Santa Ana River Flood Control Channels to the north and southeast.¹ The wetlands are divided into three major components, the Talbert, Brookhurst, and Magnolia marshes. To the southeast, the 17-acre Talbert Marsh opens to the ocean through a 100 foot-wide entrance adjacent to the mouth of the Santa Ana River. The Talbert wetland area was reintroduced to tidal influence on February 17, 1989.

The second component of the Huntington Beach wetlands, the Brookhurst wetland area includes 70 acres located between Brookhurst Avenue and Magnolia Avenue. This acreage has recently been opened to tidal flow and has been restored with wetland vegetation.

The third component of the Huntington Beach wetlands, the Magnolia marsh area, includes 40 acres located between Magnolia Avenue and the Huntington Beach Generating Station property. This acreage is under restoration and is currently being opened to tidal flow.

¹ <http://www.hbwc.org>, accessed February 12, 2010

The wetland area to the southeast of the desalination facility site is characterized primarily as southern coastal salt marsh. Southern coastal salt marsh is known to occur in bays, lagoons, and estuaries along the coast. Vegetation within this area is high quality with a few disturbed patches due to human encroachment. Vegetation types known to exist within southern coastal salt marsh in the vicinity of the project include the following:²

- common woody pickleweed (*Salicornia virginica*)
- alkali mallow (*Malvella leprosa*)
- alkali heath (*Frankenia salina*)
- curly dock (*Rumex crispus*)
- wild heliotrope (*Heliotropium curassavicum*)
- coastal saltgrass (*Distichlis spicata*)
- cocklebur (*Xanthium strumarium*)
- California encelia (*Encelia californica*)
- Alkali weed (*Cressa truxillensis*)
- California marsh rosemary (*Limonium californicum*).

Wildlife species known to exist within the project area include the following:

- Monarch butterfly (*Danaus plexippus*)
- Cooper's hawk (*Accipiter cooperil*)
- Sharp-shinned hawk (*Accipiter striatus*)
- Northern harrier (*Circus cyaneus*)
- White-tailed kite (*Elanus leucurus*)
- Merlin (*Falco columbarius*)
- American peregrine falcon (*Falco peregrinus*)
- Western snowy plover (*Charadrius alexandrinus nivosus*)
- Long-billed curlew (*Numenius americanus*)

² Southeast Coastal Redevelopment Plan Program EIR, January 23, 2002.

- California gull (*Larus californicus*)
- California least tern (*Sterna antillarum browni*)
- Elegant tern (*Sterna elegans*)
- Loggerhead shrike (*Lanius ludovicianus*)
- Belding's savannah sparrow (*Passerculus sandwichensis beldingi*).

DESALINATION FACILITY DEMOLITION, REMEDIATION, AND CONSTRUCTION

Haul Routes

Construction generated traffic associated with demolition, remediation and construction of the desalination facility is anticipated to be along Interstate 405, Beach Boulevard, Pacific Coast Highway and Newland Street.

Tank/Berm Demolition

Implementation of the Seawater Desalination Project at Huntington Beach would begin with the demolition of on-site fuel oil storage tanks and the removal of the interior portions of the containment berms surrounding the tanks. A total of three storage tanks exist on site, with a diameter of 205 feet and a height of 40 feet (Tanks 1, 2, and 3). The fuel oil tanks consist of a thin, corrugated metal external shell and an internal layer of insulation. The external metal shells would be collected and sold as scrap. All tanks are seated on either concrete footings or piles, which would also need to be removed as part of the tank demolition process.

As noted in Section 4.8, Tank 1 is empty and clean, and Tank 2 contains approximately 2 feet of aged fuel oil (level gauge reading), or approximately 1,112 barrels of fuel oil. The amount of fuel remaining in Tank 3 is unknown, however, for analysis within this section, it is assumed that it contains the same amount of fuel as Tank 1 (1,112 barrels). The contents of these tanks would either be transported to an appropriate industrial facility for reuse or disposed of at a suitable disposal site.

Each fuel storage tank is completely surrounded by a 10- to 15-foot-high berm utilized to contain any accidental spillage of fuel from the tanks. Implementation of the proposed desalination facility would require the removal of the berms along the southern and western boundaries of the site, as well as the berm separating Tanks 2 and 3. The exterior berm would be left in place, and the interior berm would be removed. It should be noted that a City-approved grading plan, grading permit, and haul route would be required prior to any excavation, remediation, or construction activities. Refer to Table 4.9-1, Demolition Process Details, for more information.

Tank demolition would most likely proceed in the following sequence:

- Removal of residual product in the fuel oil tanks
- Clean the interior of the tanks

- Removal of exterior layer of insulation
- Dismantling and removal of external metal tank shell
- Removal of concrete foundations
- Demolition and removal of interior containment berms.

The tank demolition phase of the project would result in an approximate total of 322 truck trips, which include the following:

- 12 trips for the removal of 2,224 barrels, or 70,000 gallons of fuel oil (6,500 gallon trucks loaded at 6,250 gallons per load)
- 30 trips for 30 tons of storage tank insulation (one-ton trucks)
- 110 trips for 110 tons of external storage tank shell material (one-ton trucks)
- 170 trips for 2,000 cubic yards of concrete footings or piles (14 cubic yard trucks)

Refer to Table 4.9-1, Demolition Process Details.

**TABLE 4.9-1
 DEMOLITION PROCESS DETAILS**

ACTIVITY / (ESTIMATED EARTH EXPORT/IMPORT OR OTHER MATERIAL QUANTITY)	TOTAL ACTIVITY LENGTH (MONTHS)	TOTAL NUMBER OF TRUCK LOADS/ CONSTRUCTION WORKER TRIPS	MAXIMUM NUMBER OF ONE-WAY TRUCK TRIPS PER DAY
Removal of Residual Fuel Remaining in the Tanks (up to 70,000 gallons)	1	12	6
Removal of Tank Insulation (20 tons of metal)	1	30	12
Removal of External Metal Tank Shell (100 tons of metal)	1.5	110	28
Removal of Concrete Foundations (2,000 CY)	1	170	20

Site Remediation

Areas surrounding the fuel storage tanks on the existing project site have been found to contain contaminants in exceedance of Regional Water Quality Control Board (RWQCB) thresholds.³ It would not be known until after storage tank demolition if hydrocarbon contamination exists beneath the storage tanks. It is estimated that site remediation would require a total of 215 truck trips for 3,000 cubic yards of soil (14 cubic yard trucks).

According to the Soil and Groundwater Hazardous Materials Investigation Report for the Huntington Beach Seawater Desalination Plant (Poseidon Resources Corporation 2007), CH2MHill prepared

³ Huntington Beach Generating Station Phase II Environmental Site Assessment. CH2M Hill, November 29, 1996.

the Huntington Beach Generating Station Phase II Environmental Site Assessment report (November 1996) which analyzes the potential concern in soil and groundwater contamination at the project site. Soil samples were collected from depths near the ground surface (0.5 bgs), and also at 5-foot intervals to depths of approximately 10 feet bgs. Soil samples were analyzed for total petroleum hydrocarbons-diesel (TPH-D), polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), and California Assessment Manual (CAM) metals. In addition, groundwater samples were collected near the fuel oil tanks which are located on the desalination facility site. In addition to the sample locations on the desalination facility site, two additional site areas were investigated: (1) the area adjacent to the existing wetlands and (2) the Huntington Beach Generating Station site boundary in parallel with the Ascon Landfill.

All analytical data collected at borings on the desalination facility site indicate that VOCs and heavy metals above naturally occurring levels were not determined in the soils of the site. The only contamination detected in the limited area immediately near the tanks was of hydrocarbons. TPH-D was detected above the screening criteria at Tank 1 at concentrations of 5,200 mg/kg and 6,500 mg/kg respectively. The TPH-Diesel was detected at the Tank 1 site at a concentration of 0.51 mg/L; however, no such groundwater contamination was detected during the 2002 BAS investigation of this tank.

Based on a laboratory analysis of bulk samples, both friable and non-friable asbestos-containing materials (ACMs) were detected throughout the Tank 1 and Tank 2 sites and associated pipelines for Tank 1 (Poseidon Resources Corporation 2007a). Since Tank 3 was constructed during the same time using the same construction technology, it is very likely that ACM would be present at this site as well.

THP-D and VOCs were not detected in the groundwater samples collected at two locations along the northeast fence line of the HBGS, down gradient from the Ascon Landfill. Based on this information, it appears that groundwater under the desalination facility site would not be contaminated by hydrocarbon products originating for the Ascon Landfill.

Surface soil samples were also collected at four locations where surface water runoff discharges to the nearby wetland areas and the soils were analyzed for THP-D. The results indicate that THP-S was not detected in some samples and in other samples it was detected at concentrations below the screening criteria (located along the fence line between the HBGS facilities/desalination facility site and the wetlands). Therefore, it was concluded that the soils near the existing surface water discharge locations of the HBGS to the wetlands have not been contaminated by THP-D (PCR 2007).

The City of Huntington Beach Specification 431-92, Soil Clean-Up Standard (City Specification 431-92), dated July 30, 1992, governs investigation and remedial efforts of contaminated soils. The HBFD is the local oversight agency for soil remediation.

Desalination Facility Construction

Construction of desalination facility components within project site boundaries would consist of a pretreatment filter structure, intake pump and pump station installations, reverse osmosis building, numerous pipelines, chemical storage/solids handling building, electrical substation with transformers and a mechanical electrical equipment room, various storage tanks, and an administration building. Construction of the electrical substation will commence with site grading

and be followed by foundation work for the 66kV and 12 kV bus and switching structures and equipment, transformers, grounding transformers, circuit breakers, and associated control and cable ducts. Following completion of the necessary foundation work, the substation equipment and structures will be placed on their foundations. A tie-in will also be completed from existing 66 kV lines to the substation via open-cut trench technique and two steel poles will be erected to complete the tie-in. The proposed site development is required to comply with the City of Huntington Beach Municipal Code, Chapter 17.05, Grading and Excavation Code, and with the City's Grading Manual (November 1999). All buildings and structures on site would be typical of water or wastewater facilities, consisting of cast-in-place concrete and steel construction. All buildings on site would be Type-II, non-rated. In addition, approximately 1,000 linear feet of pipeline would be installed to connect the desalination facility to the HBGS intake and outfall facilities. An intake and discharge pipeline would be installed from the southern portion of the subject site in a southerly direction, turning west near the HBGS acid retention basin, and connecting to the outfall facilities at HBGS. Refer to Figure 3-18, Desalination Facility/HBGS Cooling Water Connection. Facility construction is anticipated to result in approximately 5,200 trips for 73,000 cubic yards of soil for initial/final site grading (assuming 14 cubic yard trucks). Refer to Table 4.9-2, Site Grading Details, for more information.

**TABLE 4.9-2
 SITE GRADING DETAILS**

ACTIVITY / (ESTIMATED EARTH EXPORT/IMPORT OR OTHER MATERIAL QUANTITY)	TOTAL ACTIVITY LENGTH (MONTHS)	TOTAL NUMBER OF TRUCK LOADS/ CONSTRUCTION WORKER TRIPS	MAXIMUM NUMBER OF ONE-WAY TRUCK TRIPS PER DAY
Initial Site Grading (73,000 cubic yards)	4	5,200	60
Final Site Grading, Paving, and Landscaping (1,000 cubic yards)	8	60	8

Note: The maximum number of one-way truck per days does not include trips associated with construction worker commute trips.

The desalination facilities will be designed to minimize the need for groundwater dewatering during construction by building most of the facility structures with shallow foundations located on the ground surface or well above the groundwater level.

The dewatering system for the proposed project will be designed in such a manner that it will lower the groundwater level in the area to be excavated but not in the surrounding areas. Care will be taken to insure that the groundwater is not lowered over extensive areas outside the excavation by installing a system of monitoring wells along the perimeter of the desalination facility site in the direction of the wetlands. The excavation dewatering will be completed using one or more of the following three methods for dewatering:

- Perimeter well points with sloped excavation walls.
- Slurry wall construction with submersible well pumps inside the excavation.
- Solid sheeting construction with submersible well pumps inside the excavation.

Perimeter Well System:

In this option, well points are drilled approximately 10 feet on center around the perimeter of the excavations. These wells would typically be about 5 feet deeper than the bottom of the structure. Each well would extract only enough water to maintain the groundwater level below the bottom of the excavation.

Monitoring wells will be placed outside of the well points to measure drop in water levels. If excessive water-level drop is encountered per the determination of a California licensed geologist, the pumping rates are adjusted or the well points are modified. This ensures that areas outside the excavation such as structures and wetlands are not adversely affected.

Slurry and Solid Sheetpiling Dewatering Systems:

The other two options, slurry wall and solid sheetpiling, use a barrier to keep groundwater from entering the excavation. These systems reduce the area of entrance of groundwater to the site only to the bottom of the structure. This reduction in turn reduces the total volume of water that can reach the site and therefore reduces the total dewatering volume.

On a slurry wall system the ground around the excavation is injected with concrete slurry. This forms an underground wall which helps to slow down the flow of water into the excavation. After the wall is formed wells are drilled inside the walls to lower the groundwater. These wells are typically spaced further apart and use submersible pumps in each well. Once the groundwater level is lowered the excavation takes place. Once again monitoring wells are used outside the excavation to make sure that the groundwater is not being adversely affected.

The solid sheet construction works the same way except that interlocking steel sheets are driven into the ground instead of concrete slurry. When the structure is completed and backfilled the steel sheets are typically removed so they can be used again.

Both the solid sheet and slurry wall dewatering systems are typically used in case the conventional perimeter well dewatering system does not provide adequate reduction of the radius of influence of the dewatering operations. As indicated previously for the site-specific conditions of the Huntington Beach seawater desalination project, the need for using such dewatering systems is highly unlikely because the radius of influence of the intake wells is projected to be well within the boundaries of the desalination facility site. However, if the detailed geotechnical investigation and/or actual observations of the monitoring wells during construction indicate that the use of perimeter well dewatering system provides limited protection per the discretion of the geotechnical engineer, then solid sheet or slurry wall dewatering system would be used to minimize the environmental impacts of site dewatering.

All three types of site dewatering have been successfully used on many projects along the California coast. In fact, several projects are currently being constructed in Huntington Beach successfully using these methods.

OFF-SITE PIPELINES AND UNDERGROUND PUMP STATIONS

Proposed Pipeline Alignments

In order to convey the project's potable drinking water off site, the project requires construction of water transmission lines to connect to existing regional transmission and local water distribution systems. In addition, The OC-44 bypass station may require pipeline modifications located in Santa Ana Street to allow potable water to bypass an existing PRV station located at this site. A number of alignment options have been identified to provide flexibility in alignment selection and to ensure that all potential alignment segments are analyzed in the SEIR. Although the SEIR includes project level environmental analysis of several potential alignment options (Figure 3-3b), only one of the potential alignment options will be constructed as part of the project. This provides for a worst case analysis, in that not all of the segments of pipe that are analyzed for potential impacts will be built.

Several principal roadways would be disturbed during pipeline construction as seen in Figure 3.3-b. As seen in Table 4.9-3, pipeline alignments would be constructed along roadways with Average Daily Trips (ADT) ranging from 3,000 to 45,000 ADT.

**TABLE 4.9-3
EXISTING AVERAGE DAILY TRIPS (ADT) ALONG PIPELINE CONSTRUCTION ROUTES**

ROADWAY	AVERAGE DAILY TRIPS (ADT)
Adams Avenue	29,000 ¹
Bristol Street	45,000 ²
Brookhurst	24,000 ¹
Del Mar Avenue	7,000 ²
Elden Avenue	3,000 ²
Fair Drive	14,000 ²
Hamilton Avenue	3,000 ²
Harbor Boulevard	48,000 ²
Magnolia Street	13,000 ¹
Newland Street	8,000 ¹
Placentia Avenue	11,000 ²
Santa Ana Avenue	7,000 ²
Victoria Street	10,000 ²

¹ City of Huntington Beach, General Plan Circulation Element Update, Traffic Study, August 2009.

² Traffic Volume Map, City of Costa Mesa, County of Orange California, Spring/Fall 2006, Transportation Services Division.

Implementation of the proposed project would require the installation of pipelines to convey water. The majority of the pipeline alignment would occur within existing public streets, easements, or other rights-of-way (ROW). Table 4.9-4, Pipeline Alignment Details, provides information regarding the construction details for the primary pipeline alignment, and the longest potential pipeline alignment. Although precise pipeline alignments may be modified during final engineering analyses, the conceptual pipeline alignments are shown in Figure 3-3a and Figure 3-3b, and described in Section 3.0, Project Description. Additional information regarding the pipeline alignment alternatives is included in Appendix I, Preliminary Pipeline Assessment.

**TABLE 4.9-4
PIPELINE ALIGNMENT DETAILS**

ROUTE	OFF PAVEMENT (YARDS)	ALONG STREET RIGHT-OF- WAY (YARDS)	TRENCHLESS CONSTRUCTIONS (YARDS)	TOTAL EXCAVATION (CUBIC YARDS)	IMPORT SAND/ AGGREGATE/ ASPHALT (CUBIC YARDS)	EXPORT SOILS (CUBIC YARDS)	TRENCH FILL INCLUDING IMPORT (CUBIC YARDS)
Primary Route	0	13,533	1,650	107,199	37,931	66,102	79,027
Longest Route	0	21,552	1,000	146,444	52,406	91,060	107,789

Source: Poseidon construction questionnaire forms April 2010.

Note: See Figure 3-3b for pipeline route location(s) provided above.

As stated above, the pipeline alignment would require trenchless construction to cross waterways and roadways with a high sensitivity to traffic disturbance. The two methods under consideration are bore and jack tunneling or directional boring. Generally, bore and jack tunneling involves the excavation of two jacking and receiving pits, which are vertical excavations with shoring and bracing systems (one on each side of the waterway or roadway to be crossed). Horizontal directional drilling involves the drilling of a pilot hole at a prescribed angle from one end of the waterway/roadway to be crossed to the other utilizing a pilot drill string. Once the pilot hole is complete, the hole must be enlarged to a suitable diameter for the pipeline. This is accomplished by "pre-reaming" the hole to an appropriate diameter. A reamer is attached to the drill string and is pulled through the pilot hole by a drilling rig. Large quantities of slurry are pumped into the hole to maintain the integrity of the hole and to flush out cuttings. Once the drilled hole is enlarged and the pipeline is prefabricated, a reamer is once again attached to the drill string, and the pipeline is connected behind the reamer via a swivel. The drilling rig then pulls the reamer and pipeline through the tunnel until surfacing at the opposite end, once again circulating high volumes of drilling slurry.

For lengths of the pipeline not utilizing trenchless construction (the majority of the pipeline), open trench construction techniques would be utilized. For open trenching, the minimum coverage for a 48- to 54-inch pipe would be at least five to six feet with approximately one foot of available workspace on both sides of the pipe. This may require trenches (approximately nine to 10 feet) with appropriate shoring. Minor dewatering operations may be necessary, especially in areas close to the Pacific Ocean within the City of Huntington Beach. Including required lay-down area for supplies and equipment, a 20-foot easement may be required for trenching operations. The project pipeline improvements are anticipated to begin construction in 2011 and would last approximately twenty one months for the primary route and twenty seven months for the longest route option. Refer to Table 4.9-5, for more information.

**TABLE 4.9-5
PIPELINE ALIGNMENT CONSTRUCTION SCHEDULE**

ROUTE	DEMOLITION (INCLUDING ASPHALT/CURB/GUTTER REMOVAL) – (DAYS)	TRENCHING (DAYS)	PAVING (DAYS)
Primary Route	484	484	16
Longest Pipeline Route ¹	600	600	22

Source: Poseidon construction questionnaire forms April 2010.

¹ Project Site to Brookhurst and terminating at Katella.

OC-44 Pump Station

The off-site construction of an underground booster pump station would be required as part of the seawater desalination facility project in order to convey potable water from the subject site to southern Orange County. The pump station is proposed to be located entirely underground within an unincorporated area of the County of Orange, along the eastern border of the City of Newport Beach, approximately 1.5 miles south of the University of California, Irvine. The OC-44 underground pumping station is proposed to be located within the City of Newport Beach, approximately 1.5 miles south of the University of California, Irvine. The site is within an Orange County Resource Preservation Easement, and is located adjacent to, but outside of, an area designated as “Reserve” by the Central/Coastal Natural Community Conservation Planning Program/Habitat Conservation Plan (NCCP/HCP). The pump would be electrically powered and would be placed within an underground vault so as to avoid noise and aesthetic impacts to surrounding uses, which include residential and open space uses.

The footprint of the proposed underground pump station would be approximately 60 feet by 152 feet, requiring a construction easement of 85 feet by 177 feet. The pump station would be built 26 feet below the ground surface, and would include space for the pump station with wet well below, and two separate rooms for the electrical generator and diesel-powered emergency backup generator. Also included as part of the underground booster pump station are telemetry equipment, appurtenances, and two surge tanks. It is anticipated that the underground pump station would require a maximum of 400 cubic yards for initial site grading, 15,602 cubic yards for site excavation and 1,000 cubic yards for final site grading. Refer to Table 4.9-6, OC –44 Booster Pump Station Construction Details, for more information. The construction process for the proposed underground booster pump station is expected to last approximately 18 months.

**TABLE 4.9-6
 OC-44 BOOSTER PUMP STATION CONSTRUCTION DETAILS**

ACTIVITY / (ESTIMATED EARTH EXPORT/IMPORT OR OTHER MATERIAL QUANTITY)	TOTAL ACTIVITY LENGTH (MONTHS)	EARTHWORK ACTIVITIES (CUBIC YARDS)	TOTAL NUMBER OF TRUCK LOADS ¹
Initial Site Grading	1	400	28
Site Excavation	3	15,602	1,114
Site Final Grading and paving and Landscaping	3	1,000	71

¹ Assumes 14 cubic yards per truck load.

Construction of the proposed off-site underground OC-44 booster pump station may have impacts on biological and cultural resources. The proposed pump station site is approximately 0.5 acres in size and is undeveloped, with the exception of other water conveyance facilities and access roads, and contains native vegetation. The site is situated within a County-designated Resource Preservation Easement designated as a Natural Community Conservation Plan (NCCP) area. While development restrictions exist for the Easement, the underground pump station would be sited in an area where underground facilities are allowed (other regional water distribution pipelines). Existing conditions for biological and cultural resources are described below.

Coastal Junction Pump Station

The Coastal Junction booster pump station is proposed within the parking lot of St. Paul's Greek Orthodox Church within the City of Irvine, located at 4949 Alton Parkway (refer to Figure 3-5). The underground pump station would be constructed within the north/northwestern portion of the church parking lot, in an area used for both parking and volleyball activities. The Coastal Junction off-site underground booster pump station would include pumps, telemetry equipment, appurtenances, and one diesel powered electrical generator for emergency back-up purposes. This generator would be a Caterpillar Model 3516 unit or similar equipment and would supply approximately seven megawatts of emergency power for adequate operation of the pump station (in regards to flow and pressure). This diesel-powered generator would require a 1,300-gallon diesel fuel storage tank (assuming a 24-hour emergency period), with a diameter of six feet and a depth of 15 feet. The booster pump station, including the generator and diesel fuel storage tank, would require a total footprint area of approximately 100 feet by 100 feet, requiring a construction easement of 125 feet by 125 feet and would be placed entirely underground to a maximum depth of 26 feet below grade, which will resulting the ability to maintain the appearance and functionality of the existing parking lot. It is anticipated that the underground pump station would require a maximum of 521 cubic yards for initial site grading, 16,204 cubic yards for site excavation and 521 cubic yards for final site grading. Refer to Table 4.9-7, for more information. The construction process for the proposed underground booster pump station is expected to last approximately 18 months.

**TABLE 4.9-7
COASTAL JUNCTION BOOSTER PUMP STATION CONSTRUCTION DETAILS**

ACTIVITY / (ESTIMATED EARTH EXPORT/IMPORT OR OTHER MATERIAL QUANTITY)	TOTAL ACTIVITY LENGTH (MONTHS)	EARTHWORK ACTIVITIES (CUBIC YARDS)	TOTAL NUMBER OF TRUCK LOADS ¹
Initial Site Grading	1	521	37
Site Excavation	3	16,204	1,157
Site Final Grading and paving and Landscaping	3	521	37

¹ Assumes 14 cubic yards per truck load.

Magnolia, Brookhurst, and Bristol Pump Stations

The Magnolia and Brookhurst pump stations are located at the intersections of Orangewood Avenue/Magnolia Street and Brookhurst Street/Bixby Avenue in the City of Garden Grove (see Figure 3-3b). The pump stations would be constructed within a disturbed right-of-way. The Bristol Pump Station is located in the City of Santa Ana to the north of the Bear Avenue/Segerstrom Avenue intersection (see Figure 3-3b). The Bristol pump station would be constructed within an area including recreational uses. The underground booster pump stations would include pumps, telemetry equipment, flow meters, appurtenances, and one diesel powered electrical generator for emergency back-up purposes. A generator will be utilized to provide power at all pump stations and will require a 1,300-gallon diesel fuel storage tank (assuming a 24-hour emergency period), with a diameter of six feet and a depth of 15 feet. The stations, including the generator and diesel fuel storage tank, would require a total footprint area of approximately 100 feet by 100 feet, requiring a construction easement of 125 feet by 125 feet and would be placed entirely underground to maintain the appearance and functionality of the existing parking lot. It is anticipated that the underground pump station would require a maximum of 521 cubic yards for initial site grading,

16,204 cubic yards for site excavation and 521 cubic yards for final site grading. Refer to Table 4.9-8, for more information. The construction process for the proposed underground booster pump station is expected to last approximately 18 months.

TABLE 4.9-8
MAGNOLIA, BROOKHURST, AND BRISTOL PUMP STATIONS CONSTRUCTION DETAILS

ACTIVITY / (ESTIMATED EARTH EXPORT/IMPORT OR OTHER MATERIAL QUANTITY)	TOTAL ACTIVITY LENGTH (MONTHS)	EARTHWORK ACTIVITIES (CUBIC YARDS)	TOTAL NUMBER OF TRUCK LOADS ¹
Initial Site Grading	1	521	37
Site Excavation	3	16,204	1,157
Site Final Grading and paving and Landscaping	3	521	37

¹ Assumes 14 cubic yards per truck load.

BIOLOGICAL RESOURCES

Vegetation

The booster pump station site contains dense riparian and upland vegetation types on site. Riparian vegetation types on site include mulefat scrub, willow scrub, freshwater marsh, and open water. The *Results of the Biological Constraints Survey for the OC-44 Underground Booster Pump Station Project Site* (BonTerra 2009) report identified the following vegetation species on site:

Riparian Species

- mulefat (*Baccharis salicifolia*)
- arroyo willow (*Salix lasiolepis*)
- cattail (*Typha* sp.)
- narrow-leaved cattail (*Typha angustifolia*).

Upland Species

- California sagebrush (*Artemisia californica*)
- coyote brush (*Baccharis pilularis*)
- lemonadeberry (*Rhus integrifolia*)
- California buckwheat (*Eriogonum fasciculatum*)
- non-native grasses (*Avena* and *Bromus* spp.)
- toyon/Christmas berry (*Heteromeles arbutifolia*)

- wild oat (*Avena sp.*)
- brome grass (*Bromus sp.*)
- pine trees (*Pinus sp.*)
- gum trees (*Eucalyptus sp.*)
- Peruvian pepper trees (*Schinus molle*)
- oleander (*Nerium oleander*)
- Mexican fan palm (*Washingtonia robusta*).

The 2002 Biological Constraints Survey for the Poseidon Seawater Desalination Plant Pump Station (BonTerra 2002) also identified the following vegetation species:

Riparian Species

- Fremont cottonwood (*Populus fremontii*)
- reeds (*Scirpus spp.*)
- wild celery (*Apiastrum angusifolium*)
- western ragweed (*Ambrosia psilotachya*)
- prickly sow thistle (*Sonchus asper*)
- pampas grass (*Cortaderia selloana*).

Upland Species

- California sunflower (*Encelia californica*)
- black sage (*Salvia mellifera*)
- white sage (*Salvia apiana*)
- monkey flower (*Mimulus aurantiacus*)
- poison oak (*Toxicodendron diversilobum*)
- deer weed (*Lotus scoparius*)
- Mexican elderberry (*Sambucus mexicana*)
- coast prickly pear (*Opuntia littoralis*)

- California everlasting (*Gnaphalium californicum*)
- golden yarrow (*Eriophyllum confertiflorum*)
- black mustard (*Brassica nigra*)
- telegraph weed (*Heterotheca grandiflora*)
- tocalote (*Centaurea melitensis*)
- fan palm (*Washingtonia filifera*).

Wildlife

Vegetation types within the boundaries of the proposed booster pump station site provide moderate to high quality habitat for native wildlife species, including birds, amphibians, reptiles, mammals, and fish. Species either observed or expected to occur on site include the following:

- red-tailed hawk (*Buteo jamaicensis*)
- rock pigeon (*Columba livia*)
- morning dove (*Zenaida macroura*)
- Anna's hummingbird (*Calypte anna*)
- rufous hummingbird (*Selasphorus rufus*)
- Allen's hummingbird (*Selasphorus sasin*)
- black phoebe (*Sayornis nigricans*)
- western scrub jay (*Aphelocoma californica*)
- Cooper's hawk (*Accipiter cooperi*)
- American crow (*Corvus brachyrhynchos*)
- bushtit (*Psaltiriparus minimus*)
- ruby-crowned kinglet (*Regulus calendula*)
- house finch (*Carpodacus mexicanus*)
- northern mockingbird (*Mimus polyglottos*)
- common yellowthroat (*Geothlypis trichas*)

- coastal California gnatcatcher (*Polioptila californica californica*)
- yellow-rumped warbler (*Dendroica coronata*)
- spotted towhee (*Pipilo maculatus*)
- California towhee (*Pipilo crissalis*)
- white-crowned sparrow (*Zonotrichia leucophrys*)
- lesser goldfinch (*Carduelis psaltria*)
- least Bell's vireo (*Vireo bellii bellii*)
- monarch butterfly (*Danaus plexippus*)
- coast (San Diego) horned lizard (*Phrynosoma coronatum*)
- orange throated whiptail (*Aspidoscelis [Cnemidophorus] hyperythra*)
- Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)
- western toad (*Bufo boreas*)
- Pacific treefrog (*Pseudacris [Hyla] regilla*)
- gopher snake (*Pituophis melanoleucus*)
- western fence lizard (*Sceloporus occidentalis*)
- side-blotched lizard (*Uta stansburiana*)
- northern red-diamond rattlesnake (*Crotalus ruber ruber*)
- southwestern pond turtle (*Clemmys marmorata pallida*)
- desert cottontail (*Sylvilagus audubonii*)
- California ground squirrel (*Spermophilus beecheyi*)
- coyote (*Canis latrans*).

The 2002 Biological Constraints Survey for the Poseidon Seawater Desalination Plant Pump Station (BonTerra) also identified the following wildlife species as either observed or expected to occur on site:

- Cooper's hawk (*Accipiter cooperi*)
- red-shouldered hawk (*Buteo lineatus*)
- mourning dove (*Zenaida macroura*)
- California quail (*Callipepla californica*)
- California thrasher (*Toxostoma redivivum*)
- least Bell's vireo (*Vireo bellii bellii*)
- tree frog (*Hyla regilla*)
- African clawed frog (*Xenopus laevis*)
- western rattlesnake (*Crotalus viridis*)
- alligator lizard (*Elgaria multicarinata*)
- San Diego horned lizard (*Phrynosoma coronatum blainvillei*)
- northern red-diamond rattlesnake (*Crotalus ruber ruber*)
- southwestern pond turtle (*Clemmys marmorata pallida*)
- opossum (*Didelphis virginianus*)
- house mouse (*Mus musculus*)
- raccoon (*Procyon lotor*)
- mosquito fish (*Gambusia* sp.).

Special-Status Vegetation Communities

Special-status vegetation communities are considered to be "depleted" by the California Department of Fish and Game and the County of Orange. Two special-status habitats occur on or in the immediate vicinity of the subject site: riparian habitat (including mulefat scrub, and willow scrub,) and coastal sage scrub. In addition, riparian habitats may include wetlands, drainages, and "waters of the United States" which are protected under the jurisdiction of the U.S. Army Corps of Engineers and/or California Department of Fish and Game. It should also be noted that the pump station site is within the Central/Coastal Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) area, and is adjacent to an area designated as "Special Linkage," "Existing Use," "non-Reserve Open Space," or Policy Plan Area." As noted below, the underground pump station would be required to avoid impacts on wetlands and waters of the state and of the United States.

Special-Status Plant and Wildlife Species

No federal- or state-listed threatened or endangered plant species are expected to occur within the boundaries of the proposed pump station site. However, several federal- and/or state-listed threatened or endangered wildlife species are known to occur in the subject site region, some of which are expected to occur on or in the immediate vicinity of the subject site. These include the coastal California gnatcatcher (*Poliophtila californica*; federally listed Threatened and state-listed Species of Special Concern), least Bell's vireo (federally and state-listed Endangered), and southwestern pond turtle (federally listed Species of Concern and state-listed Species of Special Concern). It should also be noted that the area has the potential to support raptor nesting habitat. A well-established red-tailed hawk nest was observed approximately 450 feet south of the subject site in a large gum tree during a 2002 biological survey.

For a detailed discussion of existing biological resources within and surrounding the proposed booster pump station site, refer to Appendix B, Results of the Biological Constraints Survey for the OC-44 Underground Booster Pump Station Project Site.

As discussed in Section 3.0, the Coastal Junction underground booster pump station is proposed within the parking lot of St. Paul's Greek Orthodox Church within the City of Irvine, located at 4949 Alton Parkway. No sensitive vegetation communities are present as the site contains a paved parking lot. The Magnolia and Brookhurst pump stations are located at the intersections of Orangewood Avenue/Magnolia Street and Brookhurst Street/Bixby Avenue in the City of Garden Grove (see Figure 3-3b). The pump stations would be constructed within a disturbed right-of-way and no sensitive vegetation communities are present at the proposed sites. The Bristol Pump Station is located in the City of Santa Ana to the north of the Bear Avenue/Segerstrom Avenue intersection within an area including recreational uses consisting of ornamental landscaping with no sensitive vegetation communities present. No sensitive vegetation communities are present as the site.

CULTURAL RESOURCES

Historical/Archaeological Resources

No historical or archaeological resources are known to exist within the boundaries of the proposed OC-44 booster pump station site. A total of 40 cultural resource sites (including both historic and prehistoric archaeological sites) are known to exist within a 1.0-mile radius of the subject site (none within or adjacent to the subject site). One of the prehistoric sites was a large village that was occupied from 2,300 to 400 years ago and was found eligible for listing in the National Register of Historic Places. In addition, historic maps indicate that the subject site vicinity appears to be low in sensitivity for historic resources. No buildings, structures, objects, sites, features, or artifacts over 50 years of age exist on site.

Paleontological Resources

A field survey of the pump station site revealed that surficial sediments have been eroded to the Topanga Formation and then backfilled by recent alluvium, which is now exposed on the parcel and extends to a depth of approximately 5 feet. No paleontological localities have been discovered within the boundaries of the proposed booster pump station site or within a one-mile radius. However, some localities have been found elsewhere in the same sedimentary units as those found

on the subject site. Because the site is part of the Topanga Formation (containing sediments deposited during the middle Miocene period, highly sensitive for marine invertebrate and vertebrate fossils), there is potential for disturbance of fossil remains during earth-moving operations below a depth of 5 feet. No fossil remains are known to exist on the ground surface on or surrounding the subject site.

For a detailed discussion of existing cultural resources within and surrounding the proposed booster pump station site, refer to Appendix J, Phase I Cultural Resources Assessment for the Poseidon Seawater Desalination Project.

OC-44 Booster Pump Station – Optional Sites

As noted in Section 3, there are two optional sites identified for the OC-44 Booster Pump Station. Both sites are located within the City of Newport Beach, approximately 0.5 mile north of the San Joaquin Reservoir, in an area adjacent to but outside of an area designated as “Reserve” by the Central/Coastal Natural Community Conservation Planning Program/Habitat Conservation Plan (NCCP/HCP). Optional Site 2 is approximately 0.14 acre, and located south of the terminus of Ford Road, along an access road to the San Joaquin Reservoir. Optional Site 3 is approximately 0.55 acre and is located adjacent to Chambord Road, along additional access road to the reservoir intersects with Chambord. Optional Sites 2 and 3 are depicted on Figure 3-4.

Optional site 2 includes a 0.14-acre site located in primarily a developed area that consists of a gravel-covered turn-out on the eastern side of Ford Road. Southern willow scrub is adjacent to the project area directly east of the turn-out in the 100-foot-buffer area. Based on species composition and general physiognomy, one community was identified in the project area – Developed land, which is not a sensitive community and does not contain sensitive plant or wildlife species. The site is comprised of a turn-out from Ford Road, which has been graded, compacted, and covered with gravel. There are no jurisdictional wetland/waters areas on the site.

Optional Site 3 is approximately 0.54-acre in size, and consists of mostly Coyote brush scrub community with small amounts of developed and ornamental areas on the outer edges of the Project area. Access to the project area will be from the access road off of Chambord road. On site, this community has been recently disturbed and is dominated by scattered coyote brush with an understory of non-native grasses. There are no jurisdictional wetland/waters areas on the site.

Coastal Junction, Magnolia, Brookhurst, and Bristol Pump Stations

The Coastal Junction pump station, Brookhurst pump station, and Bristol pump station are all located within disturbed right-of-ways, recreational uses or within a parking lot. Since these improvements are all located in an disturbed/urbanized area, no biological or cultural resources are anticipated to exist on site.

Modification of Existing OC-35 Pump Station

The existing OC-35 Pump Station located along the OC-35 pipeline, near the intersection of Springdale Street and Skylab Road, will need to be modified to allow it to pump water from the southern side of the station. Modifications include replacement of one existing pump. In addition, The OC-35 pump station may require pipeline modifications located on the OC-35 pump station site and from the OC-35 pump station site to the OC-35 pipeline located in Springdale Street.

In addition to these off-site improvements, minor modifications to existing water conveyance facilities will also be required, including addition of piping modifications around existing pump stations and pressure reducing stations, and installation of flow control facilities. These minor modifications would occur within existing roadways and/or easements, and would require minimal construction activities.

PROJECT PHASING

The demolition, remediation, and construction process of the proposed project would last approximately 24 months, excluding time necessary to acquire all required agreements, permits, and approvals. Project phasing would be divided into three categories described below:

1. **On-Site Desalination Facility Construction:** This portion of the proposed project would last approximately 24 months, and would include such activities as on-site demolition, grading/excavation, construction of desalination facilities, landscaping, and facility startup/testing. Import and export of earthen materials would occur primarily during the first six months and last four months of this phase of the project.
2. **Off-Site Product Water Transmission Pipeline Construction:** This portion of the project would last approximately 21 months, and would start about three months after the beginning of on-site desalination facility construction. This phase would include such activities as pipeline installation, implementation of pipeline under waterways/major roadways, soil remediation, removal of pipeline, and facility startup/testing. Import and export of earthen materials would occur primarily during the middle 12 months of this phase.
3. **Off-Site Product Water Underground Booster Pump Station Construction:** This phase of the proposed project would last approximately 18 months, and would begin approximately six months subsequent to the commencement of on-site desalination facility construction. This portion of the project would include such activities as grading/excavation/paving, pump station construction, emergency power generator construction, landscaping, and facility startup/testing. Import and export of materials would occur mainly within the first six months and final six months of the phase.

It should be noted that it is anticipated that all three phases would be implemented concurrently for the final 18 months of the proposed project.

IMPACTS

SIGNIFICANCE CRITERIA

Significance criteria for construction related impacts are provided within each impact category below.

Hydrology and Water Quality

Under the CEQA Guidelines (14 CCR 15000 et seq.), a project's construction-related impacts related to hydrology and water quality may be considered to have a significant environmental effect the construction activities will:

- Violate any water quality standards or waste discharge requirements.
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on or off site.
- Potentially impact stormwater runoff from construction activities.

Water Quality Standards/Erosion and Waste Discharge Requirements

Excavation, grading, and backfilling associated with project implementation are anticipated to generate erosive conditions that may include sediment laden storm run-off or dust. Pursuant to Appendix G of the Drainage Area Management Plan (DAMP) by the Orange County Stormwater Management Program, a National Pollution Discharge Elimination System (NPDES) Permit must be obtained from the Santa Ana Regional Water Quality Control Board for the demolition, remediation, and construction process. The NPDES permit is required for any construction or demolition activity that results in a land disturbance equal to or greater than one acre and/or any construction activity associated with linear utility projects. As part of the NPDES process, the project would also comply with the State of California general permit (including the submittal of a Notice of Intent to the Santa Ana Regional Water Quality Control Board) and would include the preparation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP would outline the source control and/or treatment control BMPs that would avoid or mitigate runoff pollutants at the construction site to the “maximum extent practicable.”

The new NPDES General Permit for Storm Water Associated with Construction Activities issued by the California State Water Resources Control Board Order No. 2009-0009-DWQ (NPDES No. CAS000002) was adopted on September 2, 2009 and shall become effective on July 1, 2010 to replace Order 99-08-DWQ (SWRCB, 2009)⁴. This new permit establishes more stringent, measurable standards for discharge management, including quantitative limitations. Significant changes to the permit requirements include the following:

- A Risk Based Permitting approach which identifies discharges from projects as Risk Level 1, 2 or 3 depending on the project's sediment risk and the receiving water risk during periods of soil exposure (i.e., grading and site stabilization). All Risk Levels will be subject to compliance with Numeric Action Levels (NAL) for pH and turbidity. Exceedance of a NAL will trigger mandatory follow-up including implementation of additional BMPs and/or corrective action. Additionally, Risk Level 3 discharges will be required to comply with Numeric Effluent Levels (NELs) for turbidity and pH.
- The introduction of post-construction standards in addition to the already existent construction-related standards. All dischargers will be required to replicate the pre-project water balance such that the volume of rainfall that ends up as runoff is the same as

⁴ State Water Resources Control Board, Division of Water Quality, Order No. 2009-0009-DWQ, accessed online at http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo2009_0009_dwq.pdf

conditions prior to construction. Post-project time of runoff concentration will also be required to be equal to or greater than pre-project time of concentration.

- File electronically all Permit Registration Documents (PRDs), Notices of Termination (NOTs), etc.
- Mandatory, minimum BMPs to prevent storm water pollution and post-construction impacts.
- The implementation of a Rain Event Action Plan (REAP) for all Risk Level 2 and 3 discharge sites whenever there is a 50% or greater chance of receiving precipitation in the project area. The REAP is designed to protect all exposed portions of the site from erosion and ensure adequate sediment control.
- Increased Monitoring and Reporting Requirements including sampling, analysis and monitoring for non-visible pollutants at all sites. Risk Level 3 sites will additionally require monitoring of pH and turbidity, whereas both Risk Level 2 and 3 will require a receiving water bioassessment before and after the project completion. Annual reports must be submitted no later than September 1 of each year. Key personnel, including SWPPP prepares and inspectors, will require specified training or certification.

The project will be required to obtain a NPDES construction permit which will meet all of the required regulatory standards. Mitigation measures are identified to ensure compliance with the applicable regulatory requirements. With application of the identified mitigation measures, the project would not violate any water quality or waste discharge requirements that would impact stormwater runoff from construction activities.

Stormwater discharges from the City are also currently regulated under the fourth-term regional individual permit—Santa Ana Region Waste Discharge Requirements for the County of Orange, Orange County Flood Control District, and the incorporated cities of Orange County within the Santa Ana Region Areawide Urban Stormwater Runoff Orange County (Order No. R8-2009-0030, NPDES No. CAS618030) (Municipal NPDES Permit). The co-permittees of this Municipal NPDES Permit are responsible for the management of storm drain systems within their jurisdictions and are required to implement management programs, monitoring programs, implementation plans and all BMPs outlined in the Drainage Area Master Plan (DAMP) within each respective jurisdiction, and take any other actions as may be necessary to meet the Maximum Extent Practicable (MEP) standard. The Municipal NPDES Permit differs from the Construction General NPDES Permit in that it regulates stormwater runoff from sites and activities following construction, as opposed to during construction activities.

This Municipal NPDES Permit requires that discharges from the Municipal Separate Storm Sewer Systems (MS4s) shall not cause or contribute to exceedances of receiving water quality standards (designated beneficial uses and water quality objectives) for surface waters or groundwaters. The DAMP and its components shall be designed to achieve compliance with receiving water limitations. It is expected that compliance with receiving water limitations will be achieved through an iterative process and the application of increasingly more effective BMPs. The existing DAMP will have to be revised in accordance with the fourth-term Municipal NPDES Permit. Provisions for compliance inspection are incorporated in the Municipal NPDES Permit and include requirements for construction site inspections, including review of erosion and sediment control and BMP

implementation plans and effectiveness for residential projects and commercial and industrial developments. Each co-permittee is also required to enforce its ordinances and permits at all construction sites.

Requirements for new development and significant re-development include the establishment of a mechanism to ensure (prior to issuance of any local permits or other approvals) that all construction sites that are required to obtain coverage under the State's NPDES General Permit for construction activities have filed an NOI with the State Board to be covered by the relevant general permit and that a SWPPP is prepared and implemented. This Municipal NPDES Permit also includes a Monitoring and Reporting Program for the County of Orange, Orange County Flood Control District, and Incorporated Cities of Orange County within the Santa Ana Region Areawide Urban Stormwater Runoff area (Order No. R8-2009-0030 NPDES No.CAS618030).

Groundwater

Dewatering activities due to excavation at the proposed desalination facility site are not anticipated to have significant impacts in regards to hydrogeology and water quality. Dewatering discharge would be directed to a desilting system, and would be sampled and tested periodically to ensure compliance with all NPDES regulations and with Deminimus Permit requirements (Order No. R8-208-0003 (CAG 9980)). Should contaminated groundwater be encountered, a remediation contractor would remediate the groundwater prior to discharge into the sanitary sewer system, subject to a permit from Orange County Sanitation District, or HBGS stormwater system. The dewatering process would be a temporary procedure and would have no long-term impacts on groundwater quality in the project site vicinity. As no potable water supply or extraction wells exist within the vicinity of the subject site, no impacts to the potable groundwater supply would occur.

The dewatering system for the proposed project will be designed in such a manner that it will lower the groundwater level in the area to be excavated but not in the surrounding areas. A site specific analysis was prepared for the facilities that may require dewatering and the potential effects to nearby wetlands (Huntington Beach Seawater Desalination Project Memorandum, Tetra Tech, December 2008). The dewatering operations will have no impacts on nearby wetlands, flood channel and landfill site because of the limited radius of influence of the various dewatering systems planned to be used for the proposed project. The radius of influence of the dewatering operations is limited to less than 240 feet from the boundaries of the structures which will require dewatering, and does not extend outside of the desalination facility or AES power plant boundaries. The maximum dewatering volume associated with desalination facility construction will be over five times smaller than the groundwater "draw" volume associated with natural daily tidal fluctuations to which wetlands, flood channel and the landfill site are exposed.

Despite the fact that it is highly unlikely for dewatering operations to have an effect on the nearby wetlands and structures, a monitoring well system will be installed and operated for the duration of the desalination facility construction period in order to ascertain that construction activities do not have any measurable impacts on groundwater quality or levels outside of the boundaries of the desalination facility site. The measured water level will be compared to the water level in a control groundwater monitoring well that is outside of the desalination facility site in order to confirm that groundwater level in the wetlands is not influenced by the dewatering operations. If the groundwater level in the control monitoring well is approximately the same as this in the wells along the site boundary this will indicate that the dewatering operations have no influence on the groundwater level of the wetlands. Groundwater conditions would return to existing levels subsequent to the

dewatering process, and the project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge or seawater intrusion barriers.

Erosion and Sedimentation

Compliance with NPDES permit requirements and implementation of BMPs as found in the Orange County NPDES Stormwater Program DAMP, in the Californian Stormwater Quality Association (CASQA) Stormwater BMP Handbook, and the Standard Specifications for Public Works Construction “Greenbook,” which include such measures as use of sand bags and temporary dam building, may be applied to sufficiently reduce sediment laden storm run-off. Additionally, area watering and limiting excavation, backfilling and grading activities to non-windy days would sufficiently control the amount of particulate matter that may migrate off-site. Existing regulations require preparation and implementation of a SWPPP and a City Precise Grading permit would be required. Any potential construction dewatering would be subject to the De Minimis Threat General Permit conditions. The City of Huntington Beach LIP also requires that all construction projects, regardless of size or priority, implement stormwater BMPs that shall include, at a minimum, erosion and sediment controls. The potential for erosion is considered a significant impact, and mitigation measures are identified to reduce erosion impacts to less-than-significant levels.

Air Quality

Short-term construction-related air quality impacts would be considered significant if the project would:

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)
- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors affecting a substantial number of people

South Coast Air Quality Management District Thresholds

Under CEQA, the South Coast Air Quality Management District (SCAQMD) is an expert commenting agency on air quality and related matters within its jurisdiction or impacting its jurisdiction. Under the Federal Clean Air Act (FCAA) the SCAQMD has adopted federal attainment plans for ozone and PM₁₀. The SCAQMD reviews projects to ensure that they would not: 1) cause or contribute to any new violation of any air quality standard; 2) increase the frequency or severity of any existing violation of any air quality standard; or 3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any federal attainment plan.

The SCAQMD *CEQA Air Quality Analysis Guidance Handbook* provides significance thresholds for construction activities of projects within the SCAQMD jurisdictional boundaries. Exceedance of the

SCAQMD thresholds could result in a potentially significant impact. However, the lead agency ultimately determines the thresholds of significance for impacts.⁵ If the project proposes development in excess of the established thresholds, as illustrated in Table 4.9-9 SCAQMD Emissions Thresholds, SCAQMD Emissions Thresholds, a significant air quality impact may occur and additional analysis is warranted to fully assess the significance of impacts.

**TABLE 4.9-9
 SCAQMD EMISSIONS THRESHOLDS**

PHASE	POLLUTANT (LBS/DAY)					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Construction	75	100	550	150	150	55

Source: SCAQMD, CEQA AQMD Air Quality Analysis Guidance Handbook, page 6-1, April 1993.

In addition to the emission-based thresholds listed above, SCAQMD also recommends the evaluation of localized air quality impacts to sensitive receptors in the immediate vicinity of the project as a result of construction activities. Localized Significance Thresholds (LSTs) were developed in response to the SCAQMD Governing Board's Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (revised July 2008) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with project-specific level proposed projects. The SCAQMD provides the LST lookup tables for one, two, and five acre projects emitting CO, NO_x, PM₁₀, and PM_{2.5}. Since construction of the proposed project would disturb a maximum of four acres per day, an LST analysis was conducted.

The allowable emission rates depend on the following parameters:

- Source-Receptor Area (SRA) in which the project is located
- Size of the project site
- Distance between the project site and the nearest sensitive receptor (e.g., residences, schools, hospitals).

The project site is located in SRA 18 (North Coastal Orange County). The project would disturb an estimated four acres per day, as mentioned earlier. The nearest sensitive receptors are residential units located approximately 87 meters (approximately 285 feet) west of the project site. This sensitive land use may be potentially affected by air pollutant emissions generated during on-site construction activities.

Therefore, the values used to determine the applicable local significance thresholds from the SCAQMD lookup tables for SRA 18 were the thresholds for sites that are within 87 meters (analysis utilized linear interpolation) of the nearest sensitive receptor and a disturbed acreage of 5 acres. The thresholds are shown in Table 4.9-10, Localized Significance Thresholds.

⁵ South Coast Air Quality Management District, *CEQA Air Quality Handbook*, April 1993.

**TABLE 4.9-10
 LOCALIZED SIGNIFICANCE THRESHOLDS**

	POLLUTANT (LBS/DAY)			
	NO _x	CO	PM ₁₀	PM _{2.5}
LST	190.8	2,051.4	47.9	15.5

Source: SCAQMD, Appendix C of Final Localized Significance Threshold Methodology. July 2008.

Diesel Toxics Risk Factors

Estimates of potencies and RELs are derived from experimental animal studies or from epidemiological studies of exposed workers or other populations. Uncertainty arises from the application of potency or REL values derived from these data to the general human population. There is debate as to the appropriate levels of risk assigned to diesel particulates since the U.S. Environmental Protection Agency (EPA) has not yet declared diesel particulate matter (DPM) as a toxic air contaminant. The SCAQMD typically applies a risk level of one in a million as the *de minimis* risk level. However, this type of reporting is only applicable to large populations (such as entire air basins) where the sample group is large and the exposure time is long (which is not the case for typical project-level construction projects).

Odor-Based Thresholds

Projects emanating objectionable odors near existing sensitive receptors or other land uses where people may congregate could constitute a significant air quality impact to existing uses. Also, residential or other sensitive receptor projects built for the intent of attracting people near existing odor sources could also cause a significant air quality impact. The SCAQMD suggests a threshold based on the distance of the odor source from people and complaint records for a facility or similar facility. The threshold would be more than one confirmed complaint per year averaged over a three-year period, or three unconfirmed complaints per year averaged over a three-year period. Many of the air contaminants, which may be emitted at the proposed project, have odor thresholds based on empirical data.⁶ These thresholds would be utilized to determine the potential to create objectionable odors (i.e. these pollutants would be treated as odor surrogates for comparison against modeled emission concentrations at the maximum point of impact).

Methodologies

The following models and guidelines are used as tools to create the analytical basis for the construction related impact analysis. The tools are discussed below.

Urbemis2007⁷

Construction emissions are considered short-term impacts and are temporary in nature. URBEMIS2007 estimates construction related emission as if all construction were ongoing at the same time with all paving and architectural coatings applied in the last year. This analysis utilized the emission factors from URBEMIS2007 for the construction analysis. URBEMIS2007 operational emissions are comprised of two separate sources, area sources (i.e. emissions from space heating,

⁶ Nagata, *Measurement of Odor Threshold by Triangle Odor Bag Method*, 2002.

⁷ Rimpo and Associates. 2007. URBEMIS 2007, Version 9.2.4.

landscape maintenance) and mobile sources. These emissions are calculated for the build out period and take into account future fleet mixes and emission controls.

Where site specific or project specific data were available, URBEMIS2007 factors were modified to fit with the information (e.g., construction worker trips, demolition details, grading details, etc.). Where little or no information was available for a project, default values were selected. For the cumulative analysis, air emissions that occur in the South Coast Air Basin (SCAB) were utilized.

Impacts

Future construction of the project site would generate short-term air quality impacts during demolition, grading and construction operations. The short-term air quality analysis considers temporary impacts from the project. Construction activities would include the following:

- Clearing, grading, excavating and using heavy equipment or trucks creating large quantities of fugitive dust, and thus PM₁₀;
- Heavy equipment required for grading and construction generates and emits diesel exhaust emissions; and
- The vehicles of commuting construction workers and trucks hauling equipment generate and emit exhaust emissions.

The project proposes the demolition of three fuel oil storage tanks and construction of a seawater desalination facility. Construction activities would include demolition, grading, trenching, paving, facility construction, and architectural coating. The project is anticipated to begin construction in 2011 and would last approximately 27 months. Construction would result in an estimated maximum of four acres of site grading per day with a maximum of 3,500 cubic yards per day of cut and fill, and a total of 73,000 cubic yards of exported soil.

Demolition equipment would consist of two tractors/loaders/backhoes, one concrete industrial saw, and one rubber tire dozer. The entire project would include site grading for an estimated total of eleven acres. Construction equipment used for grading includes a grader, rubber tired dozer, tractor/loader/backhoe, and a water truck. Trenching equipment would consist of two excavators and other general industrial equipment. Paving equipment would consist of four cement and mortar mixers, two paving equipment, one paver, one roller, and one tractor/loader/backhoe. Lastly, building construction equipment would consist of one crane, two forklifts, and one tractor/loader/backhoe.

Exhaust emission factors for typical diesel-powered heavy equipment are based on the URBEMIS2007 program defaults. Exhaust emissions would vary substantially from day to day. Numerous variables factored into estimating total construction emissions include level of activity, length of construction period, number of pieces/types of equipment in use, site characteristics, weather conditions, number of construction personnel and the amount of materials to be transported on site or off site. Refer to Appendix E, Air Quality, for a listing of mobile and stationary construction equipment included in these calculations. Computer model results are also included in Appendix E, Air Quality.

The anticipated daily short-term construction emissions resulting from the proposed project are presented in Table 4.9-11, Construction Emissions – With Primary Pipeline Alignment. As indicated below in Table 4.9-11, impacts would be significant and unavoidable for NO_x during construction for 27 months. Despite the implementation of the recommended mitigation measures, overall aggregate emissions would exceed the SCAQMD standards for NO_x. Thus, construction related air emissions would be significant and unavoidable. Mitigation Measure CON-14 would also be required to reduce NO_x emissions.

**TABLE 4.9-11
CONSTRUCTION EMISSIONS – WITH PRIMARY PIPELINE ALIGNMENT**

EMISSIONS SOURCE	EMISSIONS (POUNDS PER DAY) ¹					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
YEAR 1 (partial)						
On-Site Construction						
Construction Emissions	6.18	57.04	28.55	0.03	455.78	97.11
Mitigated Emissions ^{2,3}	6.18	57.04	28.55	0.03	34.34	9.09
Coastal Junction Station						
Construction Emissions	4.90	40.82	22.31	0.00	31.18	7.96
Mitigated Emissions ^{2,3}	4.90	40.82	22.31	0.00	4.08	2.30
OC-44 Pump Station						
Construction Emissions	3.78	35.20	17.44	0.02	31.78	7.82
Mitigated Emissions ^{2,3}	3.78	35.20	17.44	0.02	3.81	1.97
Primary Pipeline Route						
Construction Emissions	7.14	49.09	29.27	0.02	34.60	9.45
Mitigated Emissions ^{2,3}	7.14	49.09	29.27	0.02	7.06	3.70
Total Year 1 Mitigated Emissions	22.00	182.15	97.57	0.07	49.29	17.06
<i>SCAQMD Threshold</i>	75	100	550	150	150	55
<i>Is Threshold Exceeded After Mitigation?</i>	No	Yes	No	No	No	No
YEAR 2						
On-Site Construction						
Construction Emissions	6.81	60.39	31.84	0.03	455.99	97.30
Mitigated Emissions ^{2,3}	6.81	60.39	31.84	0.03	34.56	9.29
Coastal Junction Station						
Construction Emissions	3.81	30.64	17.34	0.00	30.73	7.55
Mitigated Emissions ^{2,3}	3.81	30.64	17.34	0.00	3.63	1.89
OC-44 Pump Station						
Construction Emissions	2.72	22.00	12.42	0.00	2.95	1.38
Mitigated Emissions ^{2,3}	2.72	22.00	12.42	0.00	1.21	1.02
Primary Pipeline Route						
Construction Emissions	4.45	28.49	17.59	0.01	34.60	9.45
Mitigated Emissions ^{2,3}	4.45	28.49	17.59	0.01	5.41	2.19
Total Year 2 Mitigated Emissions	17.79	141.52	79.19	0.04	44.81	14.39
<i>SCAQMD Threshold</i>	75	100	550	150	150	55
<i>Is Threshold Exceeded After Mitigation?</i>	No	Yes	No	No	No	No

TABLE 4.9-11 (CONTINUED)

EMISSIONS SOURCE	EMISSIONS (POUNDS PER DAY) ¹					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
YEAR 3 (partial)						
On-Site Construction						
Construction Emissions	3.80	23.01	16.51	0.00	1.76	1.61
Mitigated Emissions ^{2,3}	3.78	23.01	16.51	0.00	1.76	1.61
Primary Pipeline Route						
Construction Emissions	3.19	15.97	11.49	0.01	2.31	1.15
Mitigated Emissions ^{2,3}	3.19	15.97	11.49	0.01	2.31	1.15
Total Year 3 Mitigated Emissions	6.97	38.98	28.00	0.01	4.07	2.76
<i>SCAQMD Threshold</i>	<i>75</i>	<i>100</i>	<i>550</i>	<i>150</i>	<i>150</i>	<i>55</i>
<i>Is Threshold Exceeded After Mitigation?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>

CO = Carbon Monoxide ROG = Reactive Organic Gases PM₁₀ = Particulate Matter less than 10 Microns PM_{2.5} = Particulate Matter less than 2.5 Microns NO_x = Nitrogen Oxides SO_x = Oxides of Sulfur

Notes:

¹ Emissions calculated using the URBEMIS 2007 version 9.2.4 Computer Model.

² The reduction/credits for construction emission mitigations are based on reduction measures included in the URBEMIS 2007 version 9.2.4 computer model, as recommended by the SCAQMD.

³ The reduction/credits for construction emission mitigations are based on mitigation included in the URBEMIS 2007 version 9.2.4 Computer Model and as typically required by the SCAQMD (Rule 403 and Rule 1113). The mitigation includes the following: replace ground cover on disturbed areas quickly, water exposed surfaces twice daily, apply soil stabilizers to inactive areas, and proper loading/unloading of mobile and other construction equipment.

Refer to Appendix E, Air Quality, for assumptions used in this analysis, including quantified emissions reduction by mitigation measures.

The Longest Pipeline Route would include pipeline installation and the construction of pump stations. Off-site demolition would mostly include pavement removal. Construction activities would include demolition, grading, trenching, and paving. Building activities would occur for the construction of the pump stations. The anticipated daily short-term construction emissions resulting from the proposed project are presented in Table 4.9-11, Construction Emissions. As indicated below in Table 4.9-12 Construction Emissions with Longest Pipeline Route, impacts would be significant and unavoidable for NO_x during construction for 27 months. Despite the implementation of the recommended mitigation measures, overall aggregate emissions would exceed the SCAQMD standards for NO_x. Thus, construction related air emissions would be significant and unavoidable. Mitigation Measure CON-14 would also be required to reduce NO_x emissions.

TABLE 4.9-12
CONSTRUCTION EMISSIONS – WITH LONGEST PIPELINE ROUTE

EMISSIONS SOURCE	EMISSIONS (POUNDS PER DAY) ¹					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
YEAR 1 (partial)						
On-Site Construction						
Construction Emissions	6.18	57.04	28.55	0.03	455.78	97.11
Mitigated Emissions ^{2,3}	6.18	57.04	28.55	0.03	34.34	9.09

TABLE 4.9-12 (CONTINUED)

EMISSIONS SOURCE	EMISSIONS (POUNDS PER DAY) ¹					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Pump Station						
Construction Emissions	4.90	40.82	22.31	0.00	31.18	7.96
Mitigated Emissions ^{2,3}	4.90	40.82	22.31	0.00	4.08	2.30
Longest Pipeline Alternative⁴						
Construction Emissions	7.08	48.35	28.99	0.02	35.92	9.70
Mitigated Emissions ^{2,3}	7.08	48.35	28.99	0.02	8.11	3.95
Total Year 1 Mitigated Emissions	18.16	146.21	79.85	0.05	46.53	15.34
<i>SCAQMD Threshold</i>	<i>75</i>	<i>100</i>	<i>550</i>	<i>150</i>	<i>150</i>	<i>55</i>
<i>Is Threshold Exceeded After Mitigation?</i>	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>
YEAR 2						
On-Site Construction						
Construction Emissions	6.81	60.39	31.84	0.03	455.99	97.30
Mitigated Emissions ^{2,3}	6.81	60.39	31.84	0.03	34.56	9.29
Pump Station						
Construction Emissions	3.81	30.64	17.34	0.00	30.73	7.55
Mitigated Emissions ^{2,3}	3.81	30.64	17.34	0.00	3.63	1.89
Longest Pipeline Alternative⁴						
Construction Emissions	6.65	44.88	28.11	0.02	35.65	9.45
Mitigated Emissions ^{2,3}	6.65	44.88	28.11	0.02	8.11	3.70
Total Year 2 Mitigated Emissions	17.24	135.91	77.29	0.05	46.30	14.88
<i>SCAQMD Threshold</i>	<i>75</i>	<i>100</i>	<i>550</i>	<i>150</i>	<i>150</i>	<i>55</i>
<i>Is Threshold Exceeded After Mitigation?</i>	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>
YEAR 3 (partial)						
On-Site Construction						
Construction Emissions	3.80	23.01	16.51	0.00	1.76	1.61
Mitigated Emissions ^{2,3}	3.78	23.01	16.51	0.00	1.76	1.61
Longest Pipeline Alternative⁴						
Construction Emissions	3.19	15.97	11.49	0.01	3.69	1.15
Mitigated Emissions ^{2,3}	3.19	15.97	11.49	0.01	3.69	1.15
Total Year 3 Mitigated Emissions	6.97	38.98	28.00	0.01	5.45	2.76
<i>SCAQMD Threshold</i>	<i>75</i>	<i>100</i>	<i>550</i>	<i>150</i>	<i>150</i>	<i>55</i>
<i>Is Threshold Exceeded After Mitigation?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>

Notes:

¹ Emissions calculated using the URBEMIS 2007 version 9.2.4 Computer Model.

² The reduction/credits for construction emission mitigations are based on reduction measures included in the URBEMIS 2007 version 9.2.4 computer model, as recommended by the SCAQMD.

³ The reduction/credits for construction emission mitigations are based on mitigation included in the URBEMIS 2007 version 9.2.4 Computer Model and as typically required by the SCAQMD (Rule 403 and Rule 1113). The mitigation includes the following: replace ground cover on disturbed areas quickly, water exposed surfaces twice daily, apply soil stabilizers to inactive areas, and proper loading/unloading of mobile and other construction equipment.

⁴ Although the Longest Pipeline Alternative requires more earthwork and haul truck trips, daily emissions are generally less than the Primary Pipeline Route due to the longer duration of the Longest Pipeline Alternative construction phases (i.e., the emissions are spread out over a longer period of time).

Refer to Appendix E, Air Quality, for assumptions used in this analysis, including quantified emissions reduction by mitigation measures.

Localized Significance Thresholds

On-site construction activities and pipeline installation would occur within Source Receptor Area (SRA) 18, North Coastal Orange County. The closest sensitive receptors to the project site are the residential units located approximately 87 meters (approximately 285 feet) west of the project site. This sensitive land use may be potentially affected by air pollutant emissions generated during on-site construction activities. Since the nearest sensitive receptor is approximately 87 meters away, the LST value was linearly interpolated between the 50 meter and 100 meter thresholds. Table 4.9-13, Summary of Localized Significance of Construction Emissions, shows the construction-related emissions for NO_x, CO, PM₁₀, and PM_{2.5} compared to the localized significance thresholds for each construction project and its respective SRA. On-site construction activities and pipeline installation would occur within SRA 18, North Coastal Orange County.

The Coastal Junction Station is located within SRA 19, Saddleback Valley, and the closest sensitive receptors would be approximately 50 meters away. The OC-44 pump station is located within SRA 20, Central Orange County Coastal, and the closest sensitive receptors are located within 25 meters. The pipeline route would be located in SRA 18, with sensitive receptors located within 25 meters. It should be noted however, that pipeline construction would occur along a linear route, and the total amount of ground disturbance in any given location that would be within 25 meters of individual sensitive receptors would be far less than one acre. However, the minimum acreage available for selection within the LST model is one acre, which therefore is used as a default, even though it overstates the impact. As shown in 4.9-13, mitigated construction emissions would exceed the localized significance thresholds during construction of the Primary Pipeline Route in Year 1 and Year 2. As construction of the primary pipeline would exceed localized significance thresholds for PM₁₀ and PM_{2.5} in Year 1, and PM₁₀ in Year 2, impacts would be significant and unavoidable.

**TABLE 4.9-13
SUMMARY OF LOCALIZED SIGNIFICANCE THRESHOLDS**

EMISSIONS SOURCE	POLLUTANT (POUNDS/DAY) ¹			
	NO _x	CO	PM ₁₀	PM _{2.5}
YEAR 1				
On-Site Construction				
Total Mitigated Emissions	57.04	28.55	34.34	9.09
Localized Significance Threshold ²	190.8	2,051.4	47.9	15.5
Is Threshold Exceeded?	No	No	No	No
Coastal Junction Station				
Total Mitigated Emissions	40.82	22.31	4.08	2.30
Localized Significance Threshold ²	93	833	11	4
Is Threshold Exceeded?	No	No	No	No
OC-44 Pump Station				
Total Mitigated Emissions	35.20	17.44	3.81	1.97
Localized Significance Threshold ²	92	639	4	3
Is Threshold Exceeded?	No	No	No	No
Primary Pipeline Route				
Total Mitigated Emissions	49.09	29.27	7.06	3.70
Localized Significance Threshold ²	92	639	4	3
Is Threshold Exceeded?	No	No	Yes	Yes

TABLE 4.9-13 (CONTINUED)

EMISSIONS SOURCE	POLLUTANT (POUNDS/DAY) ¹			
	NO _x	CO	PM ₁₀	PM _{2.5}
YEAR 2				
On-Site Construction				
Total Mitigated Emissions	60.39	31.84	34.56	9.29
Localized Significance Threshold ²	190.8	2,051.4	47.9	15.5
Is Threshold Exceeded?	No	No	No	No
Coastal Junction Station				
Total Mitigated Emissions	30.64	17.34	3.63	1.89
Localized Significance Threshold ²	93	833	11	4
Is Threshold Exceeded?	No	No	No	No
OC-44 Pump Station				
Total Mitigated Emissions	22.00	12.42	1.21	1.02
Localized Significance Threshold ²	92	639	4	3
Is Threshold Exceeded?	No	No	No	No
Primary Pipeline Route				
Total Mitigated Emissions	28.49	17.59	5.41	2.19
Localized Significance Threshold ²	92	639	4	3
Is Threshold Exceeded?	No	No	Yes	No
YEAR 3				
On-Site Construction				
Total Mitigated Emissions	23.01	16.51	1.76	1.61
Localized Significance Threshold ²	190.8	2,051.4	47.9	15.5
Is Threshold Exceeded?	No	No	No	No
Primary Pipeline Route				
Total Mitigated Emissions	15.97	11.49	2.31	1.15
Localized Significance Threshold ²	92	639	4	3
Is Threshold Exceeded?	No	No	No	No

Notes:

- ¹ Emissions calculated using the URBEMIS 2007 Version 9.2.4 Computer Model as recommended by the South Coast Air Quality Management District.
- ² The Local Significance Threshold was determined using Appendix C of the SCAQMD Final Localized Significant Threshold Methodology guidance document for pollutants NO_x, CO, PM₁₀, and PM_{2.5}. The Localized Significance Threshold is based on the project acreage (analysis utilizes 5 acres for the on-site construction, and one acre for the pump stations and pipeline route), the source receptor area (SRA 18 for the on-site construction and pipeline route, SRA 19 for the Coastal Junction Station, and SRA 20 for the OC-44 Pump Station), and distance to nearest sensitive receptor (analysis utilized linear interpolation for 87 meters for on-site construction, 50 meters for the Coastal Junction Station, and 25 meters for pipeline and OC-44 Pump Station).

Table 4.9-14, Summary of Localized Significance of Construction Emissions, shows the construction-related emissions for NO_x, CO, PM₁₀, and PM_{2.5} compared to the localized significance thresholds for the proposed pump station and the Longest Pipeline Route and its respective SRA. On-site construction activities are not included in Table 4.9-14 as they have been analyzed in Table 4.9-13, above. As with the Primary Pipeline Route, the Longest Pipeline Route would be located in SRA 18, with sensitive receptors located within 25 meters. As noted above, pipeline construction would occur along a linear route, and the total amount of ground disturbance in any given location that would be within 25 meters of individual sensitive receptors would be far less than one acre. However, the minimum acreage available for selection within the LST model is one acre, which therefore is used as a default, even though it overstates the impact. As shown in Table 4.9-14, mitigated construction emissions would exceed the localized significance thresholds during pipeline

construction in Year 1 and Year 2. As construction of the pipeline would exceed localized significance thresholds for PM₁₀ and PM_{2.5} in Year 1 and Year 2, impacts would be significant and unavoidable.

**TABLE 4.9-14
SUMMARY OF LOCALIZED SIGNIFICANCE THRESHOLDS**

EMISSIONS SOURCE	POLLUTANT (POUNDS/DAY) ¹			
	NO _x	CO	PM ₁₀	PM _{2.5}
YEAR 1				
Pump Station				
Total Mitigated Emissions	40.82	22.31	4.08	2.30
Localized Significance Threshold ²	93	833	11	4
Is Threshold Exceeded?	No	No	No	No
Longest Pipeline Alternative³				
Total Mitigated Emissions	48.35	28.99	8.11	3.95
Localized Significance Threshold ²	92	639	4	3
Is Threshold Exceeded?	No	No	Yes	Yes
YEAR 2				
Pump Station				
Total Mitigated Emissions	30.64	17.34	3.63	1.89
Localized Significance Threshold ²	93	833	11	4
Is Threshold Exceeded?	No	No	No	No
Longest Pipeline Alternative³				
Total Mitigated Emissions	44.88	28.11	8.11	3.70
Localized Significance Threshold ²	92	639	4	3
Is Threshold Exceeded?	No	No	Yes	Yes
YEAR 3				
Longest Pipeline Alternative³				
Total Mitigated Emissions	15.97	11.49	3.69	1.15
Localized Significance Threshold ²	92	639	4	3
Is Threshold Exceeded?	No	No	No	No

Notes:

- ¹ Emissions calculated using the URBEMIS 2007 Version 9.2.4 Computer Model as recommended by the South Coast Air Quality Management District.
- ² The Local Significance Threshold was determined using Appendix C of the SCAQMD Final Localized Significant Threshold Methodology guidance document for pollutants NO_x, CO, PM₁₀, and PM_{2.5}. The Localized Significance Threshold is based on the project acreage (analysis utilizes 1 acre), the source receptor area (SRA 18 for the pipeline and SRA 19 for the pump station), and distance to nearest sensitive receptor (25 meters).
- ³ Although the Longest Pipeline Alternative requires more earthwork and haul truck trips, daily emissions are generally less than the Primary Pipeline Route due to the longer duration of the Longest Pipeline Alternative construction phases (i.e., the emissions are spread out over a longer period of time).

Fugitive Dust Emissions

Construction activities are a source of fugitive dust (PM₁₀) emissions that may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the project vicinity. Fugitive dust emissions are associated with land clearing, ground excavation, cut and fill operations, and truck travel on unpaved roadways (includes demolition activities). Dust emissions also vary substantially from day to day, depending on the level of activity, the specific operations, and weather conditions.

Fugitive dust from grading and construction is expected to be short-term and would cease following project completion. Additionally, most of this material is inert silicates, rather than the complex organic particulates released from combustion sources, which are more harmful to health. Dust (larger than 10 microns) generated by such activities usually becomes more of a local nuisance than a serious health problem. Of particular health concern is the amount of PM₁₀ (particulate matter smaller than 10 microns) generated as a part of fugitive dust emissions. PM_{2.5} (particulate matter smaller than 2.5 microns) is mostly derived from combustion sources, such as automobiles, trucks, and other vehicle exhaust, as well as from stationary sources.

The SCAQMD regulates fugitive dust emissions through Rules 402 and 403, which require watering of inactive and perimeter areas, track out requirements, etc.). Additionally, trucks that are to haul excavated or graded materials on site are required to comply with State Vehicle Code Section 23114 (*Spilling Loads on Highways*).

According to the modeling results in Tables 4.9-11 and 4.9-12, total unmitigated PM₁₀ and PM_{2.5} emissions in Year 1 and Year 2 would exceed the SCAQMD threshold for both the Primary Pipeline Route and the Longest Pipeline Route. However, Mitigation Measures CON-10 and CON-11 would implement dust control techniques (i.e., daily watering), limitations on construction hours, adherence to SCAQMD Rules 402 and 403 (which require watering of inactive and perimeter areas, track out requirements, etc.) to reduce PM₁₀ and PM_{2.5} concentrations below the SCAQMD thresholds, and require trucks that are to haul excavated or graded material on-site to comply with State Vehicle Code Section 23114 (*Spilling Loads on Highways*). Therefore, with implementation of Mitigation Measures CON-10 and CON-11, PM₁₀ and PM_{2.5} emissions during construction of the project would be below the SCAQMD mass daily thresholds. Impacts would be less than significant.

Construction Equipment and Worker Vehicle Exhaust

Exhaust emissions from construction activities include emissions associated with the transport of machinery and supplies to and from the on-site desalination facility, emissions produced on site as the equipment is used, and emissions from trucks transporting materials to and from the site. Standard SCAQMD regulations, such as maintaining all construction equipment in proper tune, shutting down equipment when not in use for extended periods of time, and implementing SCAQMD Rule 403 would be adhered to. However, as noted within Table 4.9-10 and Table 4.9-11, construction equipment exhaust for both the Primary Pipeline Route and the Longest Pipeline Route would cause an exceedance of the SCAQMD's NO_x thresholds during years 1 and 2 of the construction period. Mitigation Measure CON-13 would reduce ozone precursors (NO_x and reactive organic gases (ROG)) by maintaining engines in good condition and proper tune. Additionally, as stipulated in Mitigation Measure CON-14, a Diesel Fuel Reduction Plan would be implemented to reduce levels of NO_x generated by on-site construction equipment. A Diesel Fuel Reduction Plan would be prepared prior to the issuance of a grading permit and would require post-combustion controls such as particulate traps and oxidation catalysts as well as the use of low sulfur (<15) or other alternative low polluting diesel fuel formulation. Additionally, all diesel fueled construction vehicles would be required to meet the latest emissions standards. However, even with implementation of the Diesel Reduction Plan, impacts related to NO_x emissions would remain significant and unavoidable.

In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O₃ precursors. In accordance with the methodology prescribed by the SCAQMD, the ROG emissions associated with paving have been quantified with the

URBEMIS2007 model. In addition, architectural coatings were also quantified with the URBEMIS2007 model. The highest concentration of ROG emissions would be generated during the application of architectural coatings on the building. As required by law, all architectural coatings for the proposed project would comply with SCAQMD Regulation XI, Rule 1113 – *Architectural Coating*, listed in the SCAQMD Rules and Regulations. Rule 1113 provides specifications on painting practices as well as the ROG contents within paints used for within the District. In addition, mitigation measure CON-13 requires the use of high-pressure-low-volume paint applicators with a minimum transfer efficiency of at least 50 percent, using pre-painted materials, and buildings utilizing materials that do not require painting. Project construction would not result in an exceedance of ROG emissions with implementation of mitigation measure CON-13, and impacts would therefore be less than significant.

Toxic Air Contaminants

Diesel particulate matter is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is commonly found throughout the environment and is estimated by the EPA's National Scale Assessment to contribute to human health risk. Diesel exhaust is composed of two phases, either gas or particle and both phases contribute to the risk. The gas phase is composed of many of the urban hazardous air pollutants, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde and polycyclic aromatic hydrocarbons. The particle phase also has many different types of particles that can be classified by size or composition. The size of diesel particulates that are of greatest health concern are those in the categories of fine, and ultra fine particles. The composition of these fine and ultra fine particles may be composed of elemental carbon with adsorbed compounds such as organic compounds, sulfate, nitrate, metals and other trace elements. Diesel exhaust is emitted from a broad range of diesel engines; the on road diesel engines of trucks, buses and cars and the off road diesel engines that include locomotives, marine vessels and heavy duty equipment.

Project construction would result in emissions of diesel particulate from heavy construction equipment and trucks accessing the site. Diesel particulate is characterized as a toxic air contaminant by the State of California. The Office of Environmental Health Hazard Assessment has identified carcinogenic and chronic noncarcinogenic effects from long-term exposure, but has not identified health effects due to short-term exposure to diesel exhaust. Due to the temporary nature of project construction, and because the project would not generate significant diesel emissions from construction equipment or trucks (as indicated in the LST analysis above), the project would not result in a significant health risk. Impacts would therefore be less than significant.

Noise

Project construction noise impacts would be considered significant if construction noise resulted in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Noise Impacts

Desalination Facility Construction: The project proposes a seawater desalination facility, situated on an unused fuel oil storage tank area at the HBGS. Construction of the proposed project would occur continuously over approximately 27 months, and would consist of demolition, grading, trenching, paving, and facility construction.

High groundborne noise levels and other miscellaneous noise levels can be created by the operation of heavy-duty trucks, backhoes, bulldozers, excavators, front-end loaders, compactors, graders, and other heavy-duty construction equipment. Table 4.9-15, Maximum Noise Levels Generated by Construction Equipment, indicates the anticipated noise levels of construction equipment. The average noise levels presented in the table are based on the quantity, type, and Acoustical Use Factor for each type of equipment that is anticipated to be used.

**TABLE 4.9-15
 MAXIMUM NOISE LEVELS GENERATED BY CONSTRUCTION EQUIPMENT**

TYPE OF EQUIPMENT	ACOUSTICAL USE FACTOR ¹ (PERCENT)	L _{MAX} AT 50 FEET (DBA)
Crane	16	81
Dozer	40	82
Excavator	40	81
Grader	40	85
Other Equipment (greater than five horse power)	50	85
Paver	50	77
Roller	20	80
Tractor	40	84
Truck	40	80

Note:

¹ Acoustical use factor (percent): Estimates the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

Source: Appendix F, Noise

In order to estimate the “worst case” construction noise levels that may occur at an existing noise-sensitive receptor, the combined construction equipment noise levels have been calculated for the demolition, grading, trenching, paving, and building phases. The grading phase would include mostly site preparation activities with rough grading followed by fine grading. Construction equipment utilized during this phase would include graders, heavy-duty trucks, tractors, loaders, and a water truck. The building and paving phase would involve building construction and asphalt laydown activities which would utilize graders, backhoes, trucks, pavers, rollers, and a crane.

Operating cycles for construction equipment used during these phases may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). These estimations of noise levels take into account the distance to the receptor, attenuation from molecular absorption and anomalous excess attenuation.

For construction noise, a “substantial” noise increase can be defined as interference with activities during the day and night. One indicator that construction noise could interfere with daytime activities would be speech interference. The City of Huntington Beach provides an exemption for noise associated with construction and grading in Municipal Code Section 8.40.090, Special Provisions, provided that activities do not take place between the hours of 8:00 PM and 7:00 AM on weekdays, including Saturday, or at any time on Sunday or a federal holiday. Nonetheless, this analysis evaluates the potential construction noise impacts on nearby sensitive residential receptors.

As indicated in Appendix F, Noise, the anticipated short-term construction noise levels generated during demolition, grading, trenching, paving, and building activities would expose adjacent receptors to interior noise levels of:

- 35.9 decibels adjusted (dBA) to 54.5 dBA during the demolition phase
- 33.7 dBA to 49.9 dBA during the grading phase
- 34.3 dBA to 49.9 dBA during the trenching phase
- 38.3 dBA to 54.4 dBA during paving phase
- 36.7 dBA to 48.9 dBA during building construction phase.

Thus, construction noise associated with the proposed project would not expose surrounding sensitive receptors to substantial noise levels during construction. Noise sensitive receptors in proximity to the desalination facility site (i.e., residential, school, and park uses) would not experience excessive noise levels during construction activities. Noise associated with construction of the water supply pipelines would be short-term, and the forward progression of construction activities would mean that the noise impact may last for only two to three days at any one location. Construction of the booster pump stations is not expected to result in substantial noise levels, as the equipment used to construct these project components would not generate significant noise levels.

Construction noise impacts are short-term and would cease upon completion of construction. Also, the City provides exemptions for construction activities from the provisions of the Noise Ordinance in Section 8.40.090, *Special Provisions*, provided that they take place between the hours of 7:00 AM and 8:00 PM weekdays and Saturdays. Implementation of mitigation measure CON-14 would further minimize any impacts from construction noise and would ensure that impacts would be less than significant. Thus, a less-than-significant impact would result from construction activities.

Construction activities would also cause increased noise along access routes to and from the site due to movement of equipment and workers. The proposed project would require the export of 73,000 cubic yards of soil from the project site. Construction worker commute trips would be a maximum of approximately 225 trips per day. All construction traffic would utilize Newland Street to access the project site. Construction traffic traveling north along Newland Street would cause increased noise levels to surrounding residents during the construction period. Traffic traveling south along Newland Street would cause minimal disturbance, as residents do not directly front Newland Street to the south of the project site. Newland Street has a street capacity of 20,000, as

identified in the City of Huntington Beach General Plan Circulation Element. Also, a portion of Newland Street near the project site is a designated truck route, according to the General Plan.

Existing traffic volumes along haul routes (Beach Boulevard, Pacific Coast Highway, and Newland Street) range from a minimum of 13,000 ADT along Newland Street to a maximum of 69,000 ADT along Beach Boulevard. (City of Huntington Beach, General Plan Circulation Element Update, Traffic Study, August 2009). Since, Newland Street existing ADT's are the lowest among the haul routes, receptors along this roadway would have the greatest potential to experience a change in noise associated with construction traffic. With a maximum number of construction trips anticipated to be approximately 225 trips per day, construction related traffic would under a worse-case scenario increase traffic volumes by less than 2% from existing traffic volumes. Given a less than 2% increase in traffic along heavily traveled roadways from construction traffic, the anticipated construction trips would result in a less than one dB Ldn increase. Therefore, surrounding uses would not notice a substantial increase in traffic noise from construction trips due to the existing high volume of traffic and trucks traveling along roadways. Also, construction activities would take place during allowable daytime hours (7:00 AM to 8:00 PM), would be short-term, and would cease upon project completion. Therefore, impacts would be less than significant.

Adherence to Chapter 8.40, Noise Control, of the Municipal Code requirements would ensure short-term construction noise impacts would be less than significant. The proposed project construction is anticipated to occur over a period of approximately 27 months and sensitive receptors would not be exposed to significant construction noise levels over an extended period of time. Construction noise impacts would cease upon completion of the construction phase. Impacts would be less than significant.

Vibration Impacts

Persons residing and working in the area surrounding the project could be exposed to the generation of excessive groundborne vibration or groundborne noise levels related to construction activities. Site ground vibrations from construction activities very rarely reach the levels that can damage structures, but they can achieve the audible range and be felt in buildings very close to the site. The primary and most intensive vibration source associated with the development of the project would be the use of heavy equipment during grading activities. These types of equipment can create intense noise that is disturbing and can result in ground vibrations. Section 8.40.090, *Special Provisions*, of the Municipal Code includes an exemption for noise associated with construction and grading in Municipal Code Section 8.40.090. However, the Municipal Code does not specifically include an exemption for vibration associated with construction activities.

The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. Ground vibrations from construction activities rarely reach the levels that can damage structures, but they can achieve the audible and perceptible ranges in buildings close to the construction site. Table 4.9-16, lists vibration source levels for construction equipment.

**TABLE 4.9-16
TYPICAL VIBRATION LEVELS FOR CONSTRUCTION EQUIPMENT**

EQUIPMENT	APPROXIMATE VDB			
	25 FEET	50 FEET	75 FEET	100 FEET
Large Bulldozer	87	81	77	75
Loaded Trucks	86	80	76	74
Small Bulldozer	58	52	48	46

Source: Appendix F, Noise.

Sensitive land uses surrounding the project site to the north, east, and west consist of residential and park uses. As indicated in the table above, large bulldozers are capable of producing approximately 75 VdB at 100 feet. As the nearest sensitive residential receptor to construction activities associated with the on-site desalination facility would be located 285 feet to the west, ground vibrations from project construction activities would not exceed the FRA groundborne vibration threshold of 72 VdB for residential land uses. Additionally, structures directly surrounding the project site (at a distance of 80 feet) consist of industrial buildings. These industrial buildings are expected to be structurally sufficient to withstand potential vibration from construction activities. Consequently, impacts would be less than significant.

Water Supply Pipelines and Booster Pump Stations: The project would include construction of a new water supply pipeline extending from the project site northerly into the City of Huntington Beach, City of Fountain Valley, City of Garden Grove, City of Westminster and City of Santa Ana and unincorporated areas of Orange County, and easterly into the City of Costa Mesa (see Figures 3-3a and 3-3b). A number of alignment options have been identified to provide flexibility in alignment selection and to ensure that all potential alignment segments are analyzed in the SEIR. Although the SEIR includes project level environmental analysis of several potential alignment options (Figure 3-3b), only one of the potential alignment options will be constructed as part of the project. This provides for a worst case analysis, in that not all of the segments of pipe that are analyzed for potential impacts will be built.

Methods of construction would include open trench and trenchless installations. Construction along the pipeline corridor would be carried out in several phases, each of which would utilize a unique mix of equipment and consequently would generate a unique mix of noise characteristics. Construction phases associated with the open-cut pipeline installing would include trenching, pipe laying, backfill/compacting and pavement reinstatement.

Based on typical construction equipment used for pipeline construction, the primary noise sources would include excavators, backhoes, loaders, dump trucks, cranes, welders, crew and delivery trucks, water trucks, and roller compactors.

The majority of the pipeline construction near residences would be completed using open trench methods within roadway rights-of-way. These areas are generally subject to relatively high ambient noise levels due to existing traffic noise. The residences would be approximately 40 to 50 feet from the proposed pipeline construction area at these locations. The average sound level would vary for an eight-hour work day because of the intermittent nature of construction work. The duration to complete any phase of the open trench phases of the project such as trenching, backfilling, etc., will vary. Thus, the forward progression of construction activities would mean that

the noise impact may last for only two to three days at any one location. The construction activities would comply with the local jurisdictions' noise ordinance for allowable hours. Because the project will be required to comply with construction noise restrictions and would be short in duration, it is not anticipated that excavation and installation of the pipelines using open trench installation methods would result in a significant noise impact, based on the applicable significance criteria.

Trenchless methods would be used at several areas. Two types of trenchless methods consisting of bore and jacktunneling and horizontal directional drilling may be used. Tunneling generally involves excavating an entry pit and receiving pit. Next, a tunneling machine starts from the entry pit and the machine and pipe segments are jacked forward by a hydraulic jack to the receiving pit. Horizontal directional drilling is a two-stage process that consists of drilling a small diameter pilot directional hole and then developing the pilot hole into a suitable sized bore hole that will accommodate the new pipe. The pipe is pulled back into place.

Noise impacts associated with trenchless operations are similar to open trench pipeline construction. However, rather than the construction noise progressing linearly, the noise would be confined to the excavated pits. Thus, noise impacts could last for several weeks rather than a few days at the areas adjacent to the pits. Trenchless equipment would most likely include a tunneling machine, auger/drill, a crane, front end loader, ventilation fans, air compressor, pumps, and dump trucks. Excavating the pits would generally be the most intense noise source. Thereafter, the noise impact would be less intense, but, a persistent noise source.

Noise will be generated primarily during the excavation of the launch and receiving pits. The closest residences have existing sound walls that attenuate noise from the roadway, and would serve to also attenuate construction noise. It is not anticipated that the construction noise would exceed the existing ambient traffic noise in these locations. In addition, the construction noise would be restricted based on the requirements of the local jurisdiction relative to construction noise and would therefore not exceed established standards. Therefore, the noise impact is not anticipated to be significant.

Construction activities related to booster pump stations would be restricted based on the requirements of the local jurisdiction relative to construction noise and would therefore not exceed established standards. The closest residence from any of the pump stations would be at least 95 feet away. At this distance and with the anticipated construction equipment, construction activities would be less than significant.

Construction activities related to water supply pipelines and booster pump stations are not expected to result in the exposure of persons to or generation of excessive groundborne vibration, as the equipment used to construct these project components would not generate significant vibration levels. The heavier pieces of construction equipment used at the pump station sites could include bulldozers, loaded trucks, backhoes, loaders and water trucks. Groundborne vibration information related to construction activities has been collected by the California Department of Transportation (Caltrans 2004). Information from Caltrans indicates that continuous vibrations with a peak particle velocity of approximately 0.1 inches/second begin to annoy people. Groundborne vibration is typically attenuated over short distances.

The closest residence from any of the pump stations would be at least 95 feet away. The heavier pieces of construction equipment would generate vibration levels of approximately 0.89 inches/second (peak) at a distance of 25 feet (FTA 2006). The closest home to any of the pump

station sites would be 95 feet or more from the sites. At this distance and with the anticipated construction equipment, the peak particle velocity would be approximately 0.01 inches/second at the adjacent homes. This vibration level is approximately the level of perception for humans (i.e., approximately a peak particle velocity of 0.01 inches/second). However, construction activities are not anticipated to result in vibrations at levels that typically affect sensitive receptors, and the vibration impact would be less than significant.

Underground Utilities

The demolition, remediation, and construction process for implementation of both on- and off-site components of the proposed project is not anticipated to result in impacts to public services. However, the proposed project (especially the installation of product water pipeline) may impact utilities in regards to damage or disruption of underground facilities such as water/sewer pipelines, electrical conduits, underground cable television or telephone wiring, and natural gas mains.

Appendix G of the CEQA Guidelines does not provide specific significance thresholds for the type of impacts discussed in this section. For the purposes of this analysis, a significant impact would occur if project construction activities resulted in a substantial disruption of service for existing underground utilities.

On- and off-site grading and excavation would occur only after the project engineer has identified the locations of underground utilities. Should implementation of the product water pipeline conflict with existing subsurface utilities such as sewer or storm water gravity systems, either the proposed pipeline or existing utility would be rerouted. It should be noted that although the Effingham sewer lift station is located along the Alternative Pipeline Alignment, pipeline construction would avoid this facility and disruption of service would not occur. In the event that a gravity line or other utility cannot be rerouted, the 48- to 54-inch transmission line would be installed either above or below the existing utility (since the water flowing through the proposed pipeline would be under pressure, routing the line under the utility would not affect its operation). In cases where a gravity line or other existing utility can be rerouted, the utility would be routed underneath the proposed pipeline, if possible. Gravity lines would be fitted with a siphon section to allow flow to continue uninterrupted during proposed pipeline implementation. The proposed water transmission pipeline would have adequate sanitary separation from sewer facilities, and, if necessary, the Applicant would obtain necessary permits/approvals from the Department of Public Health (DPH) for portions of the pipeline in restricted zones. Construction of the proposed water conveyance facilities would not result in disruption of existing facilities such that existing services would be substantially impaired, and therefore no significant impacts are anticipated.

Aesthetics/Light and Glare

Construction impacts would have a significant impact related to aesthetics, light and glare, if construction of the project would:

- Substantially degrade the existing visual character or quality of the site and its surroundings
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area

Demolition, remediation, and construction debris, associated mechanical equipment and high levels of truck traffic may adversely impact views of and across the project site, including the pipeline alignment and underground pump station locations. Construction and remediation activities on the proposed desalination project site would be visible from Huntington-By-The-Sea Mobile Home Park (located to the west), Beach Boulevard (located to the west), limited locations along Hamilton Avenue (located to the north), limited locations along Huntington State and Huntington City Beaches (located to the south), and from the vicinity of the intersection of Magnolia Street and Pacific Coast Highway (located to the southeast). However, these impacts would not be considered significant, as they would be limited in scope and duration. Standard construction measures such as chain link fencing and nylon mesh would be utilized to screen the staging and construction areas from surrounding areas and the general public at the proposed desalination project site and underground pump station sites. In addition, a staging area for equipment associated with the demolition, remediation, and construction process would be situated within HBGS property boundaries. Substantial sources of light and glare would not be produced by construction activities, because most construction would occur during the day and any night lighting would be limited, and focused directly on the construction area, minimizing light spill into surrounding areas. Therefore, construction activities are not anticipated to result in significant impacts related to aesthetics or lighting.

Hazards and Hazardous Materials

Construction would result in significant impacts related to hazards and hazardous materials, if the construction activities would:

- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment

Existing Hazardous Conditions

Remediation activities could expose on-site workers, future project employees, and the adjacent community to a variety of potentially hazardous materials. However, site remediation activities are strictly controlled by local, state, and federal requirements (such as the Orange County Health Care Agency, Regional Water Quality Control Board, and City of Huntington Beach, among others), and the majority of contamination in the vicinity of the proposed desalination project site is petroleum-based (which is not considered “toxic” or acutely hazardous). In addition, contaminated soils may be encountered along the proposed pipeline alignment (especially in the vicinity of the proposed desalination facility) as well as on the proposed pump station site. Therefore, compliance with the required mitigation measures (including implementation of the Remedial Action Plan, and the Health and Safety Plan subject to regulatory agency approval prior to project implementation for contaminated areas) is expected to reduce potential impacts to less-than-significant levels. Note that the project (both desalination facility construction and pipeline construction) would also require adherence to the City of Huntington Beach’s Soils Clean-Up Standard (City Specification 431-92).

No known plugged and abandoned oil wells exist within the project boundaries. However, several plugged and abandoned oil wells are located within proximity to the project site. If possible, development over these wells would be avoided. Should development over a plugged/abandoned well be necessary, the well would be plugged or re-plugged in accordance with current Division of Oil, Gas and Geothermal Resources (DOGGR) specifications. Should any unrecorded or unknown wells be encountered during the excavation or grading process, the construction contractor would immediately report and coordinate with the City of Huntington Beach Fire Department and DOGGR to ensure adequate actions are taken.

Accidental Release of Hazardous Materials

Implementation of the water transmission pipeline portion of the project may create potential impacts due to landfill gas generation (particularly methane) from the former Cannery Street Landfill, located at the northwestern corner of Hamilton Avenue and Magnolia Street (currently developed as Edison Community Center/SCE easement). Both pipeline alignment alternatives would pass directly south of the former landfill within Hamilton Avenue. However, pipeline construction in the vicinity of the former Cannery Street landfill would comply with all local, state, and federal regulations in regards to landfill gas. Standard construction practices would be implemented to determine the potential for landfill gas and, if deemed necessary, appropriate gas detection, venting, and/or barrier system would be implemented to reduce impacts to less-than-significant levels.

In addition, potential groundwater contamination beneath the subject site may pose a short-term health threat to on-site workers and adjacent land uses during dewatering operations. Groundwater pumped from the project site would be continually monitored for pollutants, and if detected, would be treated prior to discharge to the sanitary sewer system or stormwater facilities. As dewatering operations would meet all federal, State and local criteria for groundwater contaminants, impacts would be less than significant.

In addition, demolition of existing on-site fuel oil storage tanks may expose persons to ACMs and/or lead-based paint. Existing tanks on site are constructed with a layer of insulation that contains asbestos. The proposed project is not expected to present significant health hazards, as carefully controlled removal operations would comply with the Remedial Action Plan and all applicable Federal, State, and County regulations, in addition to measures imposed by the City of Huntington Beach and local agencies. A licensed asbestos/lead abatement contractor would be retained to remove the hazardous materials prior to the demolition of any structures. All ACMs would be removed in accordance with SCAQMD Rule 1403. No structures would be demolished along the pipeline alignment, as the pipeline alignment would occur within existing public streets, easements, or other rights-of-way (ROW). In addition, the two proposed booster pump location sites are void of structures, thereby eliminating the possibility of asbestos insulation or lead-based paint on site. Impacts are not anticipated to be significant.

Traffic

Construction would result in significant traffic impacts if the construction activities would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation

system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit

- Result in inadequate emergency access.

Desalination Facility Construction: Construction of the desalination facility will be completed in stages. These stages include demolition of the fuel oil tank, which currently occupies the project site, and any necessary site remediation. Subsequent stages include construction of the desalination plant, pump stations, and intake and discharge pipelines.

Implementation of the proposed project may cause short-term, construction-related traffic impacts. The demolition, remediation and construction process would generate traffic in the site vicinity through on-site construction worker vehicle trips and truck trips. However, the City of Huntington Beach's adopted the City's General Plan Circulation Element Update: Traffic Study ((Austin-Foust Associates 2009) indicates that no existing deficient street intersections (LOS D or worse) surround the subject site. The nearest deficient intersection is located along Pacific Coast Highway (PCH), at Goldenwest Street/Pacific Coast Highway, to the west of the proposed desalination project site. The truck trips to and from the project site would utilize Beach Boulevard to PCH to Newland Street, thereby minimizing impacts to the nearest deficient intersection of PCH located west of the project site. Deficient intersections have also been identified at Beach Boulevard/Talbert Avenue and Beach Boulevard/Edinger Avenue (General Plan Circulation Element Update: Traffic Study ((Austin-Foust Associates 2009) As the truck route would utilize Beach Boulevard from PCH north to the I-405 freeway, these intersection located along Beach Boulevard may be temporarily impacted by short-term demolition, remediation, and construction traffic. However, a Traffic Management Plan would be prepared for the demolition, remediation and construction phases of the proposed project in order to mitigate these short-term impacts to less-than-significant levels.

Water Supply Pipelines and Booster Pump Stations: Pipeline construction for product water delivery would require temporary disruption along public streets, as the majority of the pipeline is proposed to be installed within existing street right-of-way (ROW) utilizing open trench construction methods. Trenchless construction methods would be utilized to cross roadways sensitive to traffic disruption, such as Brookhurst Street and SR-55. Adequate staging areas would be provided for both open trench and trenchless construction in order to minimize the amount of traffic disruption.

Table 4.9-17 provides a summary of worst case impacts to roads that will experience haul route traffic associated with pipeline construction. The worst case impact on ADT is determined by calculating the largest percentage of increase on any given roadway. The worst case increase is measured against the segments of roadway with the lowest existing ADT figures, which will result in the highest percentage of increase. Therefore, Table 4.9-17 reports impacts based on the segment of each roadway with the lowest existing ADT levels.

TABLE 4.9-17
PIPELINE ROUTE OPTIONS CONSTRUCTION TRIPS SUMMARY IMPACTS

ROADWAY	MAXIMUM NUMBER OF ROUND-TRIP TRUCK TRIPS PER DAY (ADT)	ADT WITHOUT PROJECT	ADT WITH PROJECT	PERCENT INCREASE
Adams Avenue	150	29,000 ¹	29,150	0.5%
Bristol Street	150	45,000 ²	45,0150	0.3%
Brookhurst	150	24,000 ¹	24,150	0.6%
Del Mar Avenue	150	7,000 ²	7,150	2.1%
Elden Avenue	150	3,000 ²	3,150	5.0%
Fair Drive	150	14,000 ²	14,150	1.1%
Hamilton Avenue	150	3,000 ²	3,150	5.0%
Harbor Boulevard	150	48,000 ²	48,150	0.3%
Magnolia Street	150	13,000 ¹	13,150	1.14%
Newland Street	150	8,000 ¹	8,150	1.84%
Placentia Avenue	150	11,000 ²	11,150	1.35%
Santa Ana Avenue	150	7,000 ²	7,150	2.10%
Warner Avenue	150	40,000 ¹	40,150	0.4%
Victoria Street	150	10,000 ²	10,150	1.48%

¹ City of Huntington Beach, General Plan Circulation Element Update, Traffic Study, August 2009.

² Traffic Volume Map, City of Costa Mesa, County of Orange California, Spring/Fall 2006, Transportation Services Division.

As noted in Table 4.9-17, the maximum increase in ADT from traffic associated with pipeline construction would be 2.1%, which would be experienced on Santa Ana Avenue, resulting in an increase from the current 7,000 ADT to 7,150 ADT. This increase is not considered to be substantial. Therefore, the increase in traffic associated with pipeline construction is not anticipated to result in Level of Service on any of the affected roadways falling below a current acceptable level of service.

Construction within roadways will require temporary lane closures for trenching, construction staging and equipment maneuvering. These activities have the potential to result in significant short-term impacts related to traffic congestion and traffic safety. A Traffic Management Plan would be prepared for the pipeline implementation phase of the proposed project in order to minimize traffic impacts and minimize the potential to interfere with emergency response due to pipeline implementation, such as the use of plating to reopen travel lanes during peak traffic hours as well as maintaining access to businesses and residences. Therefore with the required mitigation consisting of traffic control measures to reduce congestion and the potential to interfere with emergency response, impacts would be reduced to less than significant.

Traffic impacts are not anticipated to occur upon implementation of the underground booster pump stations, as the pump station sites are proposed to occur outside of public streets, and would not require the closure of, or impede access to any roadways. Therefore, impacts would be less than significant.

Biological Resources

Construction of the desalination facility and water conveyance facilities would result in significant biological impacts if the activities would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Proposed Desalination Facility Site

Construction of the proposed desalination facility would not directly impact any sensitive species or habitats, including the existing wetland area situated to the southeast of the proposed site, as the facility is proposed entirely within the existing fuel oil storage tank area. In addition, the site does not contain any wetlands under federal or state jurisdiction, and is not within an approved Habitat Conservation Plan or Natural Community Conservation Plan reserve area, and does not contain sensitive biological resources protected under the City's Local Coastal Program. The site is also not part of a wildlife movement or linkage area, and does not serve as a wildlife nursery site.

However, construction-related impacts have the potential to occur indirectly on nearby sensitive habitat areas in regards to air quality, noise, light/glare, and storm water runoff. Construction impacts would be short-term in nature and would cease following completion of the project. Construction at the desalination facility would only occur during the hours allowed by the City of Huntington Beach Noise Ordinance (7:00 AM to 8:00 PM).

Western snowy plover (*Charadrius nivosus*, federally listed as threatened and a state species of concern) forage primarily on sand at the beach-surf interface where they feed on small invertebrates. Snowy plovers nest most commonly on sandspits, dune-backed beaches, beach strands and open areas near river mouths and estuaries (Thelander and Crabtree 1994). Western snowy plover is a winter migrant in southern California and a localized breeding resident April

through September (AES and URS 2000). Reduced tidal influence in the marsh near the project make it unlikely that western snowy plover would forage in this area. Plovers would also be unlikely to nest in this, or other nearby marsh areas due to human activity. Western snowy plover nesting was last observed in the area in 1993, when one nesting pair was observed at the protected California least tern breeding area located on the Huntington State Beach (pers. comm. 2003).

Belding's savannah sparrow (*Passerculus sandwichensis beldingii*, state-listed as endangered) may use the pickleweed of the Huntington Beach wetlands for breeding, nesting and feeding habitat (MEC 1991). Construction impacts, including short-term, temporary noise disturbance, could lead to disruption in Belding's savannah sparrow nesting activities in the marsh near the project site. Adult birds are likely to avoid areas of construction and operational impacts, minimizing potential effects on adults. In order to minimize potential construction impacts to nesting savannah sparrows, a pre-construction nesting survey would be performed by a qualified biologist in consultation with applicable regulatory agencies. Adequate mitigation (such as relocation, construction noise abatement measures, etc.) would be implemented as appropriate based on the findings of the pre-construction survey. All focused surveys for sensitive biological resources performed prior to proposed project implementation would include a review of data within the California Natural Diversity Database to obtain current information on any previously reported sensitive species/habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code.

California least tern (*Sterna antillarum brownii*, state- and federally listed as endangered) are known to fly over the Huntington Beach wetlands, and to feed in the open water of the Talbert Channel (MEC 1991). Least terns forage on small shallow-water fish such as anchovies and topsmelt (Thelander and Crabtree 1994). In order to provide abundant food for their chicks, California least terns breed in loose colonies along the coast near areas of seasonally abundant small fish, such as estuaries, river mouths and shallows. Nests are shallow depressions in sandy open areas with little vegetation. Nests and chicks are highly vulnerable to predation from native and introduced predators. A protected 7.9-acre California least tern breeding area is located on the Huntington State Beach between the Talbert Marsh opening and the mouth of the Santa Ana River, approximately 5,000 feet south east of the proposed project area. This area is likely to be unaffected by construction impacts.

Upon adherence to construction standards administered by the City of Huntington Beach, and upon implementation of recommended mitigation measures, impacts to special-status species or sensitive habitats in the nearby wetland area are not anticipated to be significant.

Off-Site Pipelines and Underground Pump Stations

Proposed Pipeline Alignments

Similar to the proposed desalination facility, construction of the offsite water conveyance pipelines would not directly impact any sensitive species or habitats, because they are proposed entirely within existing roadways and disturbed areas. In addition, the pipeline alignments are not within any wetlands under federal or state jurisdiction, and are not within an approved Habitat Conservation Plan or Natural Community Conservation Plan reserve area, and do not contain sensitive biological resources protected under the City's Local Coastal Program, or any other local resource protection policies. The pipeline alignments do not function as wildlife movement or linkage areas, and do not serve as wildlife nursery sites.

However, construction of the pipelines using trenchless construction techniques that cross under potentially jurisdictional water features may result in impacts due to “frac-outs” potentially occurring during pipeline construction. “Frac-outs” occur when drilling fluids (usually bentonite) seep to the surface via cracks in the ground. A Frac-out Contingency Plan has been prepared to establish operational procedures and responsibilities for the prevention, containment and clean-up of frac-outs associated with trenchless construction activities. The plan also specifies equipment and minimum qualifications for monitoring personnel. The Frac-Out Contingency Plan will be available for review by the City Engineer and appropriate resource agencies prior to each major bore, and adherence to the impact avoidance measures identified in the plan will reduce potential impacts to less-than-significant levels.

OC-44 Booster Pump Station

Construction of the proposed OC-44 underground booster pump station has the potential to impact biological resources, as the 0.5-acre site contains native vegetation known to support numerous species of wildlife. In addition, according to Appendix B, Results of the Biological Constraints Survey for the OC-44 Underground Booster Pump Station Project, the proposed OC-44 site may include areas within the jurisdiction of the Army Corps of Engineers (ACOE) or California Department of Fish and Game. However, siting and design options for the pump station are available to avoid direct impacts on sensitive biological resources and jurisdictional wetlands/waters. Because a final design and configuration has not yet been developed, mitigation measures are included to ensure that avoidance of direct impacts is accomplished with final design. With implementation of the avoidance measures, direct impacts on the following resources would be less than significant:

- Species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service
- Riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service
- Federally protected wetlands as defined by Section 404 of the Clean Water Act

According to the 1995 County of Orange Central & Coastal Subregion Natural Community Conservation Plan & Habitat Conservation Plan (NCCP/HCP), the OC-44 pump station would be located within the NCCP/HCP area; however, it would not be situated within or near a designated “special linkage” area. The purpose of “special linkage” areas is to “maintain connectivity between core coastal sage scrub habitat areas within the subregion, to improve biological linkages between the subregional reserve system and adjacent NCCP subregions, and to provide for other target species habitat located outside the reserve system.” The nearest “special linkage” area to the proposed underground booster pump station site is the Coyote Landfill Special Linkage area, situated approximately 2,000 feet to the east. The El Capitan Special Linkage Area is located approximately one mile to the south. Implementation of the proposed off-site underground pump station is not anticipated to impact either of these “special linkage” areas. In addition, the underground pump station site would be situated adjacent to an urbanized area. Therefore, construction at the OC-44 pump station site would not interfere substantially with wildlife movement,

and impacts would be less than significant. Further, applicable local plans that protect biological resources include the NCCP/HCP. As noted, the project would not conflict with the provisions of the HCCP/NCP, and impacts would be less than significant.

OC-44 Booster Pump Station – Optional Sites

Both of the optional sites identified for the OC-44 Booster Pump Station are located within an area adjacent to but outside of an area designated as “Reserve” by the Central/Coastal Natural Community Conservation Planning Program/Habitat Conservation Plan (NCCP/HCP).

Neither of the optional sites contain sensitive species or habitats, and do not have jurisdictional wetlands/waters. Therefore, the project would not have a substantial adverse effect, on candidate, sensitive, or special-status species, nor would it affect any federally protected wetlands. Therefore impacts would be less than significant.

A small portion of the access road for optional site 3 is within the NCCP/HCP “Reserve.” According to the Central-Coastal NCCP/HCP, however, necessary public and quasi-public infrastructure are considered permitted uses within the NCCP/HCP Reserve System. The portion of the project area that is within the NCCP/HCP is a paved access road. Therefore, no impacts to the approved NCCP/HCP would result. Additionally, because neither of the sites is within an identified linkage or corridor, the project would not interfere substantially with wildlife movement, and impacts would be less than significant.

Coastal Junction Booster Pump Station

The Coastal Junction pump station would not directly impact any sensitive species or habitats, because it is proposed entirely within a church parking lot in a disturbed area. The site does not contain any wetlands under federal or state jurisdiction, and is not within an approved Habitat Conservation Plan or Natural Community Conservation Plan reserve area, and does not contain sensitive biological resources protected under local resource protection policies. The site does not function as wildlife movement or linkage areas, and does not serve as wildlife nursery sites. No impacts to biological resources are anticipated.

OC-35 Pump Station

The OC-35 pump station would not directly impact any sensitive species or habitats, because it is proposed entirely within a developed pump station site, in a disturbed area. The site does not contain any wetlands under federal or state jurisdiction, and is not within an approved Habitat Conservation Plan or Natural Community Conservation Plan reserve area, and does not contain sensitive biological resources protected under local resource protection policies. The site does not function as wildlife movement or linkage areas, and does not serve as wildlife nursery sites. No impacts to biological resources are anticipated.

Cultural Resources

Significant impacts to cultural resources would result if the construction activities would:

- Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5

- Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature
- Disturb any human remains, including those interred outside of formal cemeteries.

Fifteen archaeological studies have been conducted within a mile radius of the proposed desalination facility site. No cultural or paleontological resources have been identified on the project site. No monitoring of excavations for the project is recommended; however, if such resources are discovered during construction, a qualified Archaeologist or Paleontologist must be retained to evaluate the discovery prior to resuming grading in the immediate vicinity of the find. Additionally, since nearby fossil localities produced small vertebrate remains that cannot be readily seen during normal monitoring activities, it is recommended that adequate sediment samples be collected and processed to determine the potential for small fossils being present in these sediments. A mitigation program must include the provision of the preparation and identification of any recovered fossils in order to ensure specimens are sent to an accredited museum for permanent storage and future retrieval by qualified paleontologists.

As no historical or archaeological resources are known to exist within or surrounding the proposed booster pump station sites, impacts are not anticipated to be significant in this regard. However, should buried historical/archaeological resources be discovered during construction, all work in that area would be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

However, as the OC-44 pump station site and the two optional pump station locations are underlain by sediments deposited during the middle Miocene period, there is a high potential for the existence of middle Miocene invertebrate fossils and lower potential for middle Miocene vertebrate and Pleistocene vertebrate/invertebrate fossils. Project excavations that would remove more than five feet of material must be monitored by a qualified Paleontologist. The paleontological monitor must be empowered to halt or divert construction equipment from the immediate vicinity of the find in order to allow for evaluation and removal (if warranted) of the discovery. Additionally, due to nearby fossil localities produced small vertebrate remains that cannot be readily seen during normal monitoring activities, it is recommended that adequate sediment samples be collected and processed to determine the potential for small fossil being present in these sediments. A mitigation program must include the provision of the preparation and identification of any recovered fossils in order to ensure specimens are sent to an accredited museum for permanent storage and future retrieval by qualified paleontologists. With the implementation of recommended mitigation measures, impacts to paleontological resources are not expected to be significant (refer to Appendix J, *PHASE I CULTURAL RESOURCES ASSESSMENT FOR THE POSEIDON SEAWATER DESALINATION PROJECT*, for more information).

SUMMARY OF IMPACTS

The following construction impacts were identified: (a) impacts to hydrology and water quality, (b) air emissions (PM₁₀, PM_{2.5}, NO_x and ROG), (c) noise generated during construction, (d) underground utilities that are present within areas proposed for construction (e) construction-related

impacts to aesthetics, light and glare, (f) hazards and hazardous materials, (g) construction generated traffic, (h) biological resources, and (i) cultural resources.

MITIGATION MEASURES

HYDROLOGY AND WATER QUALITY

CON-1 Concurrent with the submittal of any Grading Plan or Demolition Plan, the Applicant shall submit an Erosion Control Plan to the City of Huntington Beach Public Works Department for review and approval, which shall include the following measures:

- a. Where necessary, temporary and/or permanent erosion control devices, as approved by the Public Works Department, shall be employed to control erosion and provide safety during the rainy season from October 15 to April 15.
- b. Equipment and workers for emergency work shall be made available at all times during the rainy season. Necessary materials shall be available on site and stockpiled at convenient locations to facilitate the rapid construction of temporary devices when rain is imminent.
- c. Erosion control devices shall not be moved or modified without the approval of the Public Works Department.
- d. All removable erosion protective devices shall be in place at the end of each working day when the 5-day rain probability forecast exceeds 40%.
- e. After a rainstorm, all silt and debris shall be removed from streets, check berms, and basins.
- f. Graded areas on the permitted area perimeter must drain away from the face of the slopes at the conclusion of each working day. Drainage is to be directed toward desilting facilities.
- g. The permittee and contractor shall be responsible and shall take necessary precautions to prevent public trespass onto areas where impounded water creates a hazardous condition.
- h. The permittee and contractor shall inspect the erosion control work and ensure that the work is in accordance with the approved plans.
- i. Water shall be applied to the site twice daily during grading operations or as otherwise directed by the County of Orange Inspector in compliance with South Coast Air Quality Management District (SCAQMD) Rule 403 (Fugitive Dust Emissions). A grading operations plan may be required, including watering procedures to minimize dust and equipment procedures to minimize vehicle emissions from grading equipment.

CON-2 Construction of the project shall include best management practices (BMPs) as stated in the Orange County Stormwater Management Program's Drainage Area Management Plan (DAMP). BMPs applicable to the project include the following:

- Silt fences installed along limits of work, the project construction site, or both
- Stockpile containment (i.e., visqueen, fiber rolls, gravel bags, etc.)

- Hillside stabilization structures (i.e., fiber matrix on slopes and construction access stabilization mechanisms, etc.)
- Street sweeping
- Tire washes for equipment
- Runoff control devices (i.e., drainage swales, gravel bag barriers/chevrons, velocity check dams, etc.).

CON-3 As part of its compliance with the NPDES requirements, the applicant shall prepare permit registration documents (PRDs) that include a Notice of Intent (NOI) to be submitted to the Santa Ana Regional Water Quality Control Board providing notification and intent to comply with the State of California general permit prior to any construction occurring. Prior to filing the PRDs, completion of a stormwater pollution prevention plan (SWPPP) shall be required for construction activities on site. A copy of the SWPPP shall be available, implemented, and amended at the construction site at all times.

CON-4 As part of its compliance with the NPDES requirements, the applicant shall prepare permit registration documents (PRDs) that include a Notice of Intent (NOI) to be submitted to the Santa Ana Regional Water Quality Control Board providing notification and intent to comply with the State of California general permit prior to any construction occurring. According to the risk level assessed to the discharges of the project, the applicant will comply with additional requirements of NPDES permit (Order No. 2009-0009 DWQ (CAS000002)) to be effective July 1, 2010. These include numeric action levels and/or numeric effluent limitations for pH and turbidity, the preparation of rain event action plans, monitoring for pH and turbidity, and bioassessments.

CON-5 Prior to any dewatering activities, the applicant shall obtain and comply with a general dewatering NPDES permit from the Santa Ana Regional Water Quality Control Board. Prior to dewatering into a sanitary sewer system, the project applicant will obtain the required permit and adhere to the conditions outlined in the permit issued by the Orange County Sanitation District.

CON-6 Prior to receiving any grading or building permit, the applicant shall prepare a precise grading and drainage plan containing the recommendations of the final soils and geotechnical analysis for temporary groundwater dewatering, as well as for surface drainage, for review and approval by the Santa Ana Regional Water Quality Control Board and the City of Huntington Beach Public Works Department. The dewatering plan shall ensure treatment in compliance with the NPDES dewatering permit to be issued by the Santa Ana Regional Water Quality Control Board. Where necessary, a dewatering treatment system shall be employed to remove contaminants. For instance, for treatment of volatile organic compounds such as trichloroethylene, the system may employ at least two beds of granular activated carbon in series in addition to physical processes used to reduce suspended solids.

The applicant will comply with the approved dewatering plan. The dewatering plan will include provisions for the installation and operation of a monitoring well system for the duration of the desalination facility construction period. The monitoring well system will ensure that construction activities do not have any measurable impacts on groundwater quality outside of the boundaries of the desalination facility site.

CON-7 Prior to issuance of any grading permits, the applicant shall inform the Orange County Water District (OCWD) of its plans for on-site dewatering and, if necessary, acquire necessary permits and approvals from the OCWD to ensure that no adverse impacts on the groundwater basin or seawater intrusion barrier occur as a result of the proposed project. The applicant would comply with any approved dewatering permits or plans.

CON-8 During dewatering operations, a survey program shall be conducted on surrounding properties and structures to ensure that movement or settlement from on-site dewatering operations does not occur. This survey program would be subject to approval by the City of Huntington Beach Engineer and shall outline measures to be completed in the event that movement or settlement is identified, which could include discontinuing dewatering activities.

CON-9 Should on-site dewatering operations require discharge into the sanitary sewer system, the Applicant shall obtain applicable permits and approvals from the Orange County Sanitation District and City of Huntington Beach Public Works Department prior to any dewatering operations. Should the dewatering discharge be directed to existing AES storm drain facilities, the Applicant shall ensure that dewatering is addressed in the applicant's Santa Ana Regional Water Quality Control Board NPDES permit.

AIR QUALITY

CON-10 Prior to issuance of a grading permit, the applicant shall demonstrate (through submittal of a grading plan to the City of Huntington Beach) that, in compliance with SCAQMD Rule 403, excessive fugitive dust emissions shall be controlled by regular watering or other dust prevention measures, as specified in the SCAQMD's rules and regulations. In addition, SCAQMD Rule 402 requires the implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Implementation of the following measures would reduce short-term fugitive dust impacts on nearby sensitive receptors:

- Active portions of the construction site shall be watered twice daily to prevent excessive amounts of dust
- On-site vehicle speed shall be limited to 15 miles per hour
- All on-site roads shall be paved as soon as feasible, watered twice daily, or chemically stabilized

- Visible dust beyond the property line which emanates from the project shall be prevented to the maximum extent feasible
- All material transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust prior to departing the job site
- Track-out devices shall be used at all construction site access points
- All delivery truck tires shall be watered down, scraped down, or both prior to departing the job site.

CON-11 All trucks that are to haul excavated or graded material on site shall comply with California Vehicle Code Section 23114(b)(F)(e)(4) as amended, regarding the prevention of materials spilling onto public streets and roads. Prior to the issuance of grading permits, the applicant shall demonstrate to the City of Huntington Beach Engineer how the project operations subject to that specification during hauling activities shall comply with the provision set forth in Sections 23114(b)(F)(e)(4).

CON-12 Prior to issuance of a grading permit, the City of Huntington Beach Engineer and the chief building official shall confirm that the grading plan, building plans, and specifications stipulate that, in compliance with SCAQMD Rule 403, O₃ precursor emissions from construction equipment vehicles shall be controlled by maintaining equipment engines in good condition and in proper tune per manufacturer's specifications, to the satisfaction of the City Engineer. Maintenance records shall be provided to the City. The City Inspector shall be responsible for ensuring that contractors comply with this measure during construction.

CON-13 The following measures shall be implemented by the contractor to reduce ROG emissions resulting from application of architectural coatings:

- Use high-pressure-low-volume paint applicators with a minimum transfer efficiency of at least 50%
- Use required coatings and solvents with an ROG content lower than required under Rule 1113
- Utilize building materials that do not require painting to the extent feasible
- Use pre-painted construction materials.

CON-14 Prior to issuance of a grading permit, a "Diesel Fuel Reduction Plan shall be submitted to the City Engineer. This plan shall identify the actions to be taken to reduce diesel fuel emissions during construction activities (inclusive of grading and excavation activities). Reductions in diesel fuel emissions can be achieved by measures including but not limited to the following: a) use of alternative energy sources, such as compressed natural gas or liquefied petroleum gas, in mobile equipment and vehicles; b) use of "retrofit technology," including diesel particulate

traps, on existing diesel engines and vehicles; and c) other appropriate measures. The plan shall include, at a minimum, the following provisions:

- All diesel-fueled off-road construction equipment shall be California Air Resources Board certified or use post-combustion controls that reduce pollutant emissions to the same level as California Air Resources Board certified equipment. California Air Resources Board certified off-road engines are engines that are 3 years old or less and comply with lower emission standards. Post-combustion controls are devices that are installed downstream of the engine on the tailpipe to treat the exhaust. These devices are now widely used on construction equipment and are capable of removing over 90 percent of the PM₁₀, CO, and volatile organic compounds from engine exhaust, depending on the specific device, sulfur content of the fuel, and specific engine. The most common and widely used post-combustion control devices are particulate traps (e.g., soot filters), oxidation catalysts, and combinations thereof.
- All diesel-fueled on-road construction vehicles shall meet the emission standards applicable to the most current year to the greatest extent possible. To achieve this standard, new vehicles shall be used, or older vehicles shall use post-combustion controls that reduce pollutant emissions to the greatest extent feasible.
- The effectiveness of the latest diesel emission controls is highly dependant on the sulfur content of the fuel. Therefore, diesel fuel used by on- and off-road construction equipment shall be low sulfur (less than 15 ppm) or other alternative, low-polluting diesel fuel formulation.

NOISE

CON-15

Prior to the issuance of grading permits, the applicant shall ensure evidence acceptable to the City of Huntington Beach Planning and Building Department and Public Works Department that:

- Construction vehicles or equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers and other state-required noise attenuation devices
- Operations shall comply with the City of Huntington Beach Municipal Code Chapter 8.40 (Noise Control).
- Property owners and occupants located within 1,200 feet of the desalination facility boundary shall be sent a notice, at least 15 days prior to commencement of construction of each phase, regarding the construction schedule of the proposed project. A sign, legible at a distance of 50 feet shall also be posted at the project construction site. All notices and signs shall be reviewed and approved by the City prior to mailing or posting and shall indicate the dates and duration of construction activities, as well as

provide a contact name and a telephone number where residents can inquire about the construction process and register complaints.

- Prior to issuance of a grading or building permit, the applicant shall demonstrate to the satisfaction of the City's Building Official how construction noise reduction methods (e.g., shutting off idling equipment, installing temporary acoustic barriers around stationary construction noise sources, and maximizing the distance between construction equipment staging areas and occupied residential areas) shall be used where feasible.
- Construction haul routes shall be designed to avoid noise-sensitive uses (e.g., residences, schools, etc.).
- During construction, stationary construction equipment shall be placed such that emitted noise is directed away from sensitive noise receivers.

UNDERGROUND UTILITIES

- CON-16** Unless underground utility locations are well documented, as determined by the City of Huntington Beach Public Works Department, the project engineer shall perform geophysical surveys to identify subsurface utilities and structures, and incorporate the findings into site design prior to construction. Pipelines or conduits which may be encountered within the excavation and graded areas shall either be relocated or cut and plugged according to the applicable code requirements.

AESTHETICS/LIGHT AND GLARE

- CON-17** During construction, a security fence, the height of which shall be determined by the City of Huntington Beach Planning and Building Department, shall be installed around the perimeter of the site. The construction site shall be kept clear of all trash, weeds, etc.
- CON-18** Construction activities shall be concentrated away from adjacent residential areas, to the extent feasible. Equipment storage and soil stockpiling shall be at least 100 feet away from adjacent residential property lines.

HAZARDS AND HAZARDOUS MATERIALS

- CON-19** Prior to excavation of the contaminated area and other areas for rough grading, the project site shall be cleared of all excess vegetation, surface trash, piping, debris, and other deleterious materials. These materials shall be removed and disposed of properly (recycled, if possible).
- CON-20** Proper excavation procedures shall comply with the Occupational Safety and Health Administration's Safety and Health Standards. If applicable, the SCAQMD Rule 1166 permit shall be obtained prior to the commencement of excavation and remedial activities.

- CON-21** The contractor shall follow all recommendations contained within the adopted Remedial Action Plan and Health and Safety Plan for the project site.
- CON-22** A licensed asbestos/lead abatement contractor shall be obtained to remediate the asbestos-containing materials and lead-based paint on site prior to construction. The contractor shall contact the SCAQMD and the City of Huntington Beach Departments of Planning, Building and Safety, and Fire prior to asbestos/lead paint removal.
- CON-23** If any hazardous materials not previously addressed in the mitigation measures contained herein are identified and/or released to the environment at any point during the site cleanup process, operations in that area shall cease immediately. At the earliest possible time, the contractor shall notify the City of Huntington Beach Fire Department of any such findings. Upon notification of the appropriate agencies, a course of action would be determined subject to the approval of the City of Huntington Beach Public Works Department and Fire Department.
- CON-24** All structures must be cleaned of hazardous materials prior to off-site transportation or hauled off site as a waste in accordance with applicable regulations.
- CON-25** Structure removal operations shall comply with all regulations and standards of the SCAQMD.
- CON-26** The contractor shall post signs prior to commencing remediation, alerting the public to the site cleanup operations in progress. The City of Huntington Beach Planning and Building Department and Public Works Department shall review and approve the size, wording and placement of these signs.
- CON-27** Unrecorded or unknown wells uncovered during the excavation or grading process shall be immediately reported to and coordinated with the City of Huntington Beach Fire Department and State Division of Oil, Gas, and Geothermal Resources, and shall meet City Specification 422.
- CON-28** During remediation, if any soil was found to be hazardous due to contamination other than petroleum hydrocarbons, it would be segregated, stockpiled, and handled separately after issuance of a stockpiling permit by the City of Huntington Beach Public Works Department.
- CON-29** Dust and volatile organic emissions from excavation activities shall be controlled through water spray or by employing other approved vapor suppressants, including hydromulch spray, in accordance with Regional Water Quality Control Board Waste Discharge Requirements and the SCAQMD permit conditions.
- CON-30** Prior to the excavation process for pipeline construction, the contractor shall coordinate with the Orange County Integrated Waste Management Department in order to ensure that proposed pipeline construction does not impact drainage of the former Cannery Street Landfill.

- CON-31** Methane migration features would be consistent with the requirements of the City of Huntington Beach Specification Number 429 and other applicable state and federal regulations. The methane migration features shall be submitted for review and approval to the Orange County Health Care Agency, Environmental Health Division and the City of Huntington Beach Fire Department.
- CON-32** Studies to evaluate the potential for landfill gas generation and migration would be completed prior to implementation of the proposed water delivery component of the project. Appropriate mitigation measures would be coordinated with the SCAQMD, Solid Waste Local Enforcement Agency, Regional Water Quality Control Board, and the City of Huntington Beach Fire Department. Mitigation measures shall entail active or passive extraction of landfill gas to control surface and off-site migration and passive barriers with vent layers and alarm systems below trenches and within 1,000 feet of the former Cannery Street Landfill boundary. A comprehensive monitoring network would be established along the pipeline alignment adjacent to the landfill. Periodic monitoring of the monitoring network would be performed.
- CON-33** Closure reports or other acceptable documentation shall be reviewed and approved by the Huntington Beach Fire Department to document the successful completion of required remediation activities, if any, for contaminated soils, in accordance with City Specification 431-92. The reports/documentation shall be submitted and approved by the Huntington Beach Fire Department prior to the issuance of grading permits for site development. No construction shall occur in the affected area until reports have been accepted by the City.

TRAFFIC

- CON-34** Prior to construction, a traffic management plan (TMP) shall be prepared and implemented to the satisfaction of the affected jurisdiction within which the facilities are to be constructed where construction would affect roadways. The affected jurisdiction shall review and approve the TMP prior to construction to ensure that congestion and delay of traffic resulting from project construction is not substantially increased and will be of a short-term nature. To ensure that congestion and delay of traffic resulting from project construction is not substantially increased, the TMP shall include, but not be limited to, the following measures:
- Limit construction to one side of the road or out of the roadbed where possible
 - Provide continued access to commercial and residential properties adjacent to construction sites
 - Provide alternate bicycle routes and pedestrian paths where existing paths/routes are disrupted by construction activities, if any
 - Submit a truck routing plan, for approval by the City of Huntington Beach, Orange County, and other responsible public agencies in order to minimize impacts from truck traffic during material delivery and disposal

- Where construction is proposed for two-lane roadways, confine construction to one-half of the pavement width. Establish one lane of traffic on the other half of the roadway using appropriate construction signage and flagmen, or submit a detour plan for approval by the City Traffic Engineer
- The traffic management plan shall specifically address the proposed Ascon landfill remediation activities and provide measures to ensure that the timing and frequency of truck traffic entering and exiting the landfill, in conjunction with project construction, will not result in substantial delays, or circulation conflicts. Measures may include staggering of work hours/construction days, use of flag personnel, alternate routes, or other measures capable of avoiding or reducing traffic congestion
- Affected agencies shall approve the traffic management plan at least two weeks prior to construction. Per Caltrans requirements, the applicant shall submit the traffic management plan to Caltrans at the 90% design phase
- Construction activities shall, to the extent feasible, be coordinated with other construction activity taking place in the affected area(s)
- Provide for temporary parking, where necessary, during installation of pipelines within the AES site.
- On- and off-site traffic signing and striping shall be implemented in conjunction with detailed construction plans for the project.
- Ensure that access will be maintained to individual properties and businesses, and that emergency access will not be restricted. The contractor shall coordinate in advance with local jurisdictions to avoid restricting movements of emergency vehicles. Each jurisdiction shall notify police departments, fire departments, ambulance services, and paramedic services in advance of the proposed locations, nature, timing, and duration of construction activities and shall advise of access restrictions that could impact their effectiveness. At locations where access to nearby property is blocked, provision shall be ready at all times to accommodate emergency vehicles, such as plating over excavations, short detours, and alternate routes in conjunction with local agencies.

CON-35 Prior to initiating the removal of structures and contaminated materials, the contractor must provide evidence that the removal of materials would be subject to a traffic control plan, for review and approval by the by the City of Huntington Beach Public Works Department. The intent of this measure is to minimize the time period and disruption of heavy duty trucks.

CON-36 Construction-related activities would be subject to, and comply with, standard street use requirements imposed by the City of Huntington Beach, Orange County, and other public agencies, including the use of flagmen to assist with haul truck ingress

and egress of construction areas and limiting the large size vehicles to off-peak commute traffic periods.

- CON-37** The contractor shall obtain the necessary right-of-way encroachment permits and satisfy permit requirements prior to any construction. Nighttime construction may be performed in congested areas. Also, nighttime construction activities shall have prior approval by the City of Huntington Beach Public Works Department and other affected agencies.
- CON-38** During periods of heavy equipment access or truck hauling, the contractor would provide construction traffic signage and a construction traffic flagman to control construction and general project traffic at points of ingress and egress and along roadways that require a lane closure.
- CON-39** The applicant shall coordinate with the Public Works Department, Traffic Engineering Division in developing a truck and construction vehicle routing plan prior to issuance of grading permits. This plan shall include the approximate number of truck trips and the proposed truck haul routes. It shall specify the hours in which transport activities can occur and methods to mitigate construction-related impacts to adjacent residents and the surrounding area. The plan shall take into consideration any street improvement construction occurring in the vicinity. These plans must be submitted for approval to the Public Works Department.

BIOLOGICAL RESOURCES

- CON-40** The willow scrub vegetation on the OC-44 pump station site (primary site) provides suitable nesting and foraging habitat for the least Bell's vireo (*Vireo bellii bellii*). The applicant shall demonstrate in its construction documents that construction activities do not directly affect the willow scrub vegetation. Further, if construction is to occur during the breeding season for least Bell's vireo (March 1 through September 15), focused surveys for this species are recommended in order to determine this species presence or absence from the project site prior to any construction activities. If the species is detected, and if construction occurs during the breeding season within 500 feet of active nest sites, construction noise shall be limited to 60 decibels adjusted at the nest location.
- CON-41** To avoid impacts on nesting birds (including the least Bell's vireo), construction activities for the OC-44 booster pump station site or optional sites (whichever is selected) should be conducted between September 16 and March 14. If construction occurs inside the peak nesting season (between March 15 and September 15), a pre-construction survey (or possibly multiple surveys) will be conducted prior to construction activities by a qualified biologist to identify any active nesting locations. If the biologist does not find any active nests within the project site, the construction would be allowed to proceed. If the biologist finds an active nest within the project site and determines that the nest may be impacted, the biologist would delineate an appropriate buffer zone around the nest; the size of the buffer zone would depend on the affected species and the type of construction activity. Any active nests observed during the survey would be mapped on an aerial photograph. Only construction activities (if any) that have been approved by a biological monitor would

take place within the buffer zone until the nest is vacated. The biologist shall serve as a construction monitor during those periods when construction activities shall occur near active nest areas to ensure that no inadvertent impacts on these nests shall occur. Results of the pre-construction survey and any subsequent monitoring shall be provided to the California Department of Fish and Game and any other appropriate CEQA lead and responsible agencies.

- CON-42** Suitable habitat for the coastal California gnatcatcher (*Poliophtila californica*) is present within the coastal sage scrub vegetation that occurs immediately east of the primary site for the OC-44 pump station. Additionally, gnatcatchers were observed in this area during the biological survey. The applicant shall demonstrate in its construction documents that occupied coastal sage scrub vegetation is not directly affected by construction activities. Further, if construction activities take place during the breeding season for this species (between February 15 and August 30 for areas within the Natural Community Conservation Plan), a pre-construction survey is recommended in order to determine the presence or absence of this species from the project site. If this species is found to occur on the project site, and if construction occurs during the breeding season within 500 feet of active nest sites, construction noise shall be limited to 60 decibels adjusted at the nest location
- CON-43** A survey for active raptor nests by a qualified biologist would be required on the proposed OC-44 booster pump station site prior to any habitat disturbance during the breeding season (generally between February 1 and June 30). Any occupied nests found during survey efforts would be mapped on construction plans. Restrictions on construction activities may be required in the vicinity of the nest until the nest is no longer active as determined by a qualified biologist. In many circumstances, a 300- to 500-foot buffer zone is designated around an active nest to minimize disturbance to the active nest. Once the nest is no longer in use for the season, construction can proceed within the buffer zone.
- CON-44** The project applicant shall prepare a horizontal directional drill contingency plan prior to each major bore, to address procedures for containing an inadvertent release of drilling fluid (frac-out). The plan shall contain specific measures for monitoring frac-outs, containing drilling mud, and notifying agency personnel. The City Engineer and appropriate resource agencies shall review the site-specific Frac-Out Contingency Plan prior to each major bore, and during construction the project applicant shall implement the measures identified in the plan.
- CON-45** In order to minimize potential construction impacts to nesting savannah sparrows (*Passerculus sandwichensis*) near the proposed desalination facility, a qualified biologist will perform a preconstruction nesting survey in consultation with applicable regulatory agencies. Should nesting savannah sparrows be found, adequate mitigation (e.g., relocation, construction noise abatement measures, etc.) would be implemented as appropriate based on the findings of the preconstruction survey.
- CON-46** Focused surveys for sensitive biological resources performed prior to proposed project implementation shall include a review of data within the California Natural Diversity Database to obtain current information on any previously reported sensitive

species/habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code.

CON-47 Construction activities would be limited to a well-defined area. Prior to grading and construction activities, a qualified biologist shall fence or stake the limits of disturbance.

CON-48 A qualified biologist shall monitor construction activities to ensure that no inadvertent impacts on biological resources occur.

CULTURAL RESOURCES

CON-49 Should buried historical/archaeological resources be discovered during excavation on the OC-44 proposed booster pump station site, all construction work in that area shall be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

CON-50 During excavation of 5 feet below ground surface or lower on the proposed OC-44 booster pump station site, a paleontological resource recovery program for Miocene invertebrate fossils shall be implemented. This program shall include, but not be limited to, the following:

- Monitoring by a qualified paleontologic monitor of excavation in areas identified as likely to contain paleontologic resources. The monitor shall be equipped to salvage fossils as they are unearthed to avoid construction delays and to remove samples of sediments, which are likely to contain the remains of small fossil invertebrates and vertebrates. The monitor must be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Monitoring may be reduced if the potentially fossiliferous units described herein are not encountered, or upon exposure are determined following examination by qualified paleontologic personnel to have low potential to contain fossil resources.
- Preparation of recovered specimens to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates.
- Identification and curation of specimens into a museum repository with permanent retrievable storage. The paleontologist should have a written repository agreement in hand prior to the initiation of mitigation activities.
- Preparation of a report of findings with appended itemized inventory of specimens. The report and inventory, when submitted to the appropriate lead agency, would signify completion of the program to mitigate impacts to paleontologic resources.

CON-51 A qualified paleontologist shall be retained to monitor grading operations at the proposed desalination facility site and, if necessary, to salvage scientifically

significant fossil remains. The paleontologist shall have the authority to temporarily divert or direct grading efforts to allow evaluation and salvage of exposed fossils.

- CON-52** While it is not anticipated, in the case that human remains are found within the OC-44 booster pump station site, no further excavation or disturbance of the site or nearby area reasonably suspected to overlie adjacent remains shall occur until the County coroner has determined, within two working days of notification of the discovery, the appropriate treatment and disposition of the human remains. The County coroner shall be notified within 24 hours of the discovery. If the County coroner determines that the remains are or are believed to be Native American, the California Native American Heritage Commission in Sacramento must be notified within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the Native American Heritage Commission must immediately notify those persons it believes to be the most likely descended from the deceased Native American. The descendants shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

UNAVOIDABLE SIGNIFICANT IMPACTS

Emissions associated with construction activities are above the screening level thresholds for criteria pollutants (NO_x, PM₁₀, and PM_{2.5}).

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